

THE

JOURNAL OF GAS LIGHTING.

WATER SUPPLY, & SANITARY IMPROVEMENT.

VOL. XV. No. 359—18th YEAR.]

LONDON, JULY 24, 1866.

[Subscription { 15s. in Advance } Price 8d. per Ann. { 18s. Credit. } Unstamped.]

RAMSAY'S CANNEL COAL.

Analysis by Lewis THOMPSON, Esq. :-
Specific Gravity. 600
Cubic Feet. 9151
Illuminating Power. 5 feet per hour. = 27-2 candles.

RAMSAY'S PATENT CONDENSED COKE, DO. GARESFIELD COKE.

RAMSAY'S FIRE-CLAY ARTICLES.

GAS-RETORTS, introduced 1838.
FIRE-BRICK WORKS, established 1804.
FIRE-CLAY SANITARY PIPES, CHIMNEY-TOPS, and all Goods made of Fire Clay.

The Fire Clay is worked from Blaydon Main Colliery, is of excellent quality, and no expense spared in perfecting every article.

The FIRE-BRICKS (marked "RAMSAY") are to be seen in all parts of the world, and the works are the most extensive in the Kingdom.

Manufacturers: DERWENTHAUGH, SWALWELL, and HERBURN QUAY. Offices: BROAD CHARE, NEWCASTLE-UPON-TYNE. Address, G. H. RAMSAY.

IMPROVED GASLIGHT.

Most of the complaints made of deficiency of gaslight, and bad gas, arise from the unskillful combustion of the gas, and especially from the employment of bad burners. The atmosphere is thus rendered offensive and unwholesome, and becomes charged with smoke—an inconvenience that is especially felt in churches, theatres, and public offices.

By using proper burners, regulating the pressure, and carburetting the gas, it will be rendered the cheapest and most wholesome artificial light that can be used.

CARLESS, BLAGDEN, and Co., having been for many years practically engaged in manufacturing every variety of substance used for the production of artificial light, have for some time specially directed their attention to the subject of carburetting gas.

In conjunction with GEO. GLOVER and Co., an extensive series of experiments have been conducted with the greatest care, and by means of instruments of the highest scientific precision; and the result of their united efforts is, that the fluid and apparatus have been so improved as to give a real commercial value to the process of carburetting common gas. The most important result to be obtained from this process is that the light can be doubled or trebled, and that for an equal amount of light the production of heat and carbonic acid gas will be greatly reduced, even to less than the quantity produced by wax candles and oil-lamps.

Messrs. GEO. GLOVER and Co. will have pleasure in showing the apparatus in use, and in giving any explanation that may be desired. Architects, engineers, and scientific men generally, are especially invited.

For list of prices, and all other information, apply to

GEO. GLOVER and CO.,
WORKS, RANELAGH ROAD, PIMLICO, S.W.; or,
CARLESS, BLAGDEN, and CO.,
2, NEW LONDON STREET, E.C.



COWEN'S PATENT FIRE-CLAY RETORTS.

JOSEPH COWEN and CO.,
BLAYDON BURN, NEAR NEWCASTLE-ON-TYNE.

Were the only parties to whom a PRIZE MEDAL was awarded at the GREAT EXHIBITION of 1851, for "GAS RETORTS and OTHER OBJECTS in FIRE-CLAY," and they have also been awarded in the INTERNATIONAL EXHIBITION of 1862, the PRIZE MEDAL for "GAS RETORTS, FIRE-BRICKS, &c., for EXCELLENCE of QUALITY."

J. C. and Co. have been for many years the most extensive Manufacturers of Fire-Clay Retorts in the United Kingdom; and orders for Fire-Clay Retorts of all shapes and dimensions, Fire-Bricks, and every other article in Fire-Clay are promptly executed at their Works as above.

COWEN'S GARESFIELD COALS.
Coal Office,
QUAY SIDE, NEWCASTLE-ON-TYNE.

FIRST PRIZE IN THE PARIS EXHIBITION.



JOHN RUSSELL AND CO.,

THE OLD TUBE WORKS,
CHURCH HILL, WEDNESBURY;

ALMA WORKS,
WALSALL, STAFFORDSHIRE;
and 69, UPPER THAMES STREET, LONDON,
Original Manufacturers of Wrought-Iron Gas Tubes and Holders of the present Patents: Inventors and First Makers of LAP-WELDED FLUES for Steam Boilers.

J. R. and Co. make all kinds of Tubes and Fittings for Gas, Steam, and Water, and the largest Orders may be executed in a few days.

Gun Metal, and all other kinds of Cocks, Stocks, Dies, and Taps, Galvanised Tubes, &c.

N.B. All Goods thoroughly Tested before sent out, and Warranted.

THE MARQUIS OF LOTHIAN'S

CANNEL COAL.

This Cannel is extensively used in the Gas-Works of Edinburgh, and been so for Forty Years, and is well known to Gas Manufacturers throughout Scotland.

The yield per ton is 12,573 cubic feet, with an illuminating power equal to 33-8 standard sperm candles. Coke per ton by weight is 1045 lbs., by measure 26 bushels.

For price and other information, apply to Mr. JOHN ROMANS, Civil Engineer, 53, Frederick Street, EDINBURGH.

BLAYDON BURN AND LOW BENWELL FIRE CLAY RETORT AND FIRE-BRICK WORKS, NEAR NEWCASTLE-ON-TYNE.

WILLIAM COCHRAN CARE begs

most respectfully to thank the Metropolitan, Provincial, and Continental Gas Companies for their patronage for several years past, and to intimate that he has rebuilt and enlarged his extensive premises for the Manufacture of CLAY RETORTS; and that he is now prepared to execute the largest orders with punctuality and despatch. Orders for FIRE-CLAY RETORTS, of all shapes and sizes, FIRE-BRICKS, and all other Articles in Fire-Clay, executed on the shortest notice, and on the most reasonable terms.

London Agents: JAMES LAWRIE & CO.,
63, OLD BROAD STREET, CITY, LONDON.

CLEGG'S TREATISE ON

COAL GAS.

The Fourth Edition is NOW IN COURSE OF DELIVERY. Subscribers whose names have been sent to the Office of the JOURNAL OF GAS LIGHTING, are requested to remit the amount of their subscription per Post Order, payable to WILLIAM B. KING, 11, Bolt Court, Fleet Street, LONDON.

If the Volume is required to be sent into the country, the subscription (15s.) should be accompanied with the further sum of 6d. to pay for securely packing and booking the same.

The price to Non-Subscribers is 21s.

WANTED, 2 Station-Meters and 2

GOVERNORS, second hand. The meters to pass from 400 to 1000 feet per hour. The governors, from 3000 to 3000 feet per hour.

Communications to be sent to Mr. ROMANS, Gas Engineer, 53, Frederick Street, EDINBURGH.

Established A.D. 1782.



Prize Medal Holders.

WILLIAM BLEWS AND SONS,

9, 10, 11, and 12, NEW BARTHOLOMEW STREET, BIRMINGHAM;

AND 38, WEST SMITHFIELD, LONDON;

PATENTERS AND MANUFACTURERS OF METAL AND GLASS CHANDELIERS, &c.,

IN THE PUREST STYLE OF ART. Also of IRON TUBES AND FITTINGS,

FOR GAS STEAM, AND WATER; Steam and other Cocks in Gun-Metal and Brass; Stocks, Taps, and Dies; Gas-Hooks and Burners; Brass, Copper, and Composition Tubes; and every article required in the erection of Gas-Works.

ALL WARRANTED.

GEORGE GLOVER & CO.'S PATENT DRY GAS-METERS.

The advantages of these Meters are best appreciated by a consideration of the evils they avert. The more prominent of these evils are the following:—

1. Inaccurate measurement, and varying registration.
2. Jumping of the lights, and their sudden extinction.
3. Escapes of gas through the plugs being left out, or imperfectly secured, when the Wet Meter has been replenished with water.
4. The gas passing without being registered at all.
5. The temptations and facilities to fraud which it is notorious the Wet Meter presents.



6. The damage to house property which the impracticable attempt to keep the lights from jumping, by giving all the pipes a gradual ascent from the Meter, so as to admit of the water trickling back into it, necessarily occasions.
7. The waste of gas from the higher pressure required to work Wet Meters, the possibility of the water freezing, and their axles and moving parts becoming corroded.

These faults, characteristic of the Wet Meter, and fruitful in annoyance, interruption to business, pecuniary loss, and danger, are entirely averted by the use of George Glover and Co.'s Patent Dry Gas-Meter.

It is, besides, more durable than the Wet Meter; and they maintain it in good working order for five years, free of cost to the purchaser; and for any number of years, at half the expense at which the Wet Meter can be maintained.

As regards accurate measurement, correct registration, the absence of temptation to fraud, safety, convenience, and economy, the superiority of their Dry Meter is admitted; and it has come more rapidly into use, both in this country and abroad, than any Meter hitherto manufactured.

The prices may be compared favourably with those of any meters in the market; and they are lower than most.

List of Prices, and all Particulars, may be obtained on Application.

RANELAGH WORKS, RANELAGH ROAD, PIMLICO, LONDON, S.W.;
127, BOULEVARD DE MAGENTA, PARIS; AND 15, MARKET STREET, MANCHESTER.

Now published, price 1s., per post 14 stamps, illustrated with various cuts,

THE GAS CONSUMER'S GUIDE.

By Wm. RICHARDS, C.E.
Containing:—Progress of Artificial Light—Gas, its Manufacture and Quality—Advantages of Gas—Considerations on adopting Gas Lighting—On Burners, Flashes, Glasses, &c.—The Proper Position for Gas-Lights—Gas-Meters popularly explained—Index of Gas-Meters—Gas-Regulator—Ventilation—General Remarks.

London: E. & F. N. SPON, 16, BUCKLESHURDY.

BUTTER ON GAS LIGHTING.

Just Published, Fcap. 8vo., toned paper, pp. 71, sewed, price 6d.

ADVANTAGES OF GAS IN PRIVATE HOUSES.

A HANDY BOOK FOR GAS CONSUMERS: TELLING THEM WHAT TO DO, AND WHAT NOT TO DO.

By J. O. N. RUTTER, F.R.A.S.

A new and revised edition, and the 196th thousand.

LONDON:

VIRTUE BROTHERS AND CO., 26, IVY LANE, PATERNOSTER ROW, and all Booksellers, 1866.

For distribution by gas companies, the price is £12 12s. per 1000 copies, and £1 10s. per 100.

Crown 16mo, pp. 20.

GAS IN DWELLING-HOUSES: ITS USES, CONVENIENCES, AND ECONOMY.

A revised and enlarged edition, and the 52nd thousand. Price—1000 copies, £3 10s.; 500 copies, £1 17s. 6d.; any smaller number at 8s. 6d. per 100.

When 1000 copies are ordered, the official title, scale of prices, and other information relating to the business of the Company, will be printed on the covers without extra charge.

All orders and inquiries for the last-mentioned edition to be addressed to the AUTHOR, Black Rock, BRIGHTON.

GAS LEGISLATION, 1866.

Now ready.

Reports of the Proceedings before Select Committees of Parliament.

ALDRINGTON, HOVE, AND BRIGHTON GAS, and BRIGHTON AND HOVE GENERAL GAS BILLS—price 2s., by post 2s. 1d.

SHEFFIELD UNITED GAS BILL—price 1s., by post 1s. 1d.

WANDSWORTH AND PUTNEY GAS BILL—price 1s., by post 1s. 1d.

IMPERIAL AND EQUITABLE GAS BILL—price 1s., by post 1s. 1d.

CHATHAM, ROCHESTER, &c., GAS BILL—price 1s., by post 1s. 1d.

London: WILLIAM B. KING, 11, Bolt Court, FLEET STREET, E.C.

D. GRANT & CO.,

GAS-METER MANUFACTURERS

(Stamped according to the Sale of Gas Act).

STATION-METERS ANY SIZE.

PHOTOMETERS, EXPERIMENTAL METERS,

PRESSURE-GAUGES, &c.

Price List on application.

GAS-METER WORKS, CROSSCAUSWAY, EDINBURGH.

TO INVENTORS AND PATENTEES.

MR. W. H. BENNETT, having had

considerable experience in matters connected with Gas, Water, and Sanitary Improvement, begs to say that he continues to assist Inventors in the perfection of their designs, and to obtain for them PROVISIONAL PROTECTION, whereby their invention may be secured for Six Months; or LETTERS PATENT, which are granted for Fourteen Years.

Patents completed, or proceeded with at any stage, thereby rendering it unnecessary for persons resident in the country to visit London.

Patents procured for Foreign Countries. Information as to cost, &c., supplied gratuitously upon application to the advertiser, 42, Parliament Street, WESTMINSTER. [Office of the JOURNAL OF GAS LIGHTING, &c.]

GARSDIE'S Registered Tube-Vice

and improved Main Drilling Clips may be had from the maker.

For drawings and prices apply to SAMUEL GARSDIE, Gate Field Iron-Works, ASHTON-UNDER-LYNE.

JAMES OAKES and CO.,

ALFRETON IRON WORKS, DERBYSHIRE,

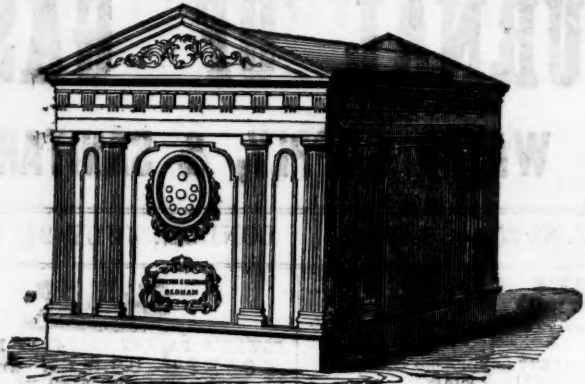
AND WENLOCK IRON WHARF, 30, WHARF ROAD, CITY ROAD, LONDON.

Beg to inform Gas and Water Companies and the public, that they keep in stock in London all the CASTINGS in general use in Gas and Water-Works, including Iron Retorts, Socket and Flange Pipes, Pends, Branches, and Syphons of all sizes, Lamp Columns, &c., &c.

N.B.—Orders for Cast-iron Tanks, Girders, Columns, Cylinders, and all irregular castings, will have immediate attention.

CHARLES HORSLEY, Agent.

GLOBE METER-WORKS.

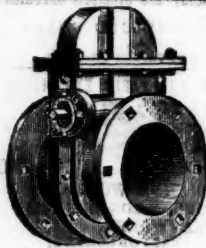


NEWTON & BRADDOCK,

MANUFACTURERS OF

STATION METERS, CONSUMERS METERS, &c.,

OLDHAM.



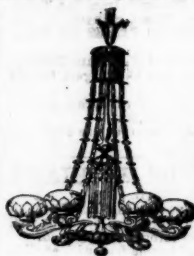
REDUCED PRICES OF BRYAN DONKIN & CO'S IMPROVED GAS VALVES

WITH WROUGHT-IRON PINIONS
from 2 inches to 18 inches, price 9s. 6d. to 12s. per inch diameter
List of prices, with full dimensions of all sizes up to 36 inches, to be had on application.

These Valves are all proved on both sides to 30 lbs. on the square inch before leaving the works, and are always kept in stock.
Valves made with Outside Backs to order. Also, Screw Water-Valves with Gun-Metal Faces.

BRYAN DONKIN & CO.,
ENGINEERS,

NEAR GRANGE ROAD, BERMONDSEY.



F. & C. OSLER,

45, OXFORD STREET, LONDON;

Manufactory—Broad Street, Birmingham—Established 1807,

MANUFACTURERS OF GLASS CHANDELIERS, GLASS LUSTRES, TABLE GLASS, &c. &c.

ELEGANT CRYSTAL GLASS CHANDELIERS, for GAS, from £4 upwards (Made from "REGISTERED" DESIGNS), with GLASS BRANCHES, &c.; suitable for DRAWING-ROOMS and BALL-ROOMS. The more extensive use of Gas in private dwellings has induced Messrs. OSLER to direct their particular attention to the manufacture of this class of articles—which, with a view to their general adoption, are offered at very moderate prices. Purchasers can select from a great variety of patterns, to which additions are being constantly made.
THEATRES, CONCERT, ASSEMBLY, AND BALL ROOMS LIGHTED BY ESTIMATES ON THE LOWEST TERMS.

JOSEPH BOULTON,

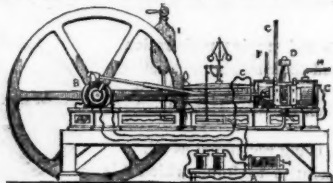
80, KING'S CROSS ROAD, AND

104, GREAT PERCY STREET, CLERKENWELL.

Manufacturer of the Patent Dry and Improved Unvarying Water-Line Gas-Meters and Station-Meters, Governors, Experimental Meters, and Pressure Gauges, on the most improved principle.

Old Meters thoroughly repaired, and altered to meet the requirements of the Act of Parliament.
ALL METERS WARRANTED.

FREEDOM FROM SMOKE. POWER WITHOUT RISK.



THE GAS-ENGINE COMPANY, LIMITED,

Beg to announce that they are ready to supply GAS-ENGINES of the following powers: half-horse power, one-horse power, two-horse power, three-horse power.

They are simple in construction, free from danger, and require no special attendant. The Insurance Offices do not increase their rates, therefore the Engines can be used where steam would be inadmissible.

A large number are employed in London and provincial towns, for the purpose of sawing, pumping, working warehouse lifts, and driving all classes of machinery, such as printing-presses, soda-water machines, bottle-washing, hair-brushing, biscuit and confectionery machinery.

Prices and full particulars may be obtained either by post or personal inquiry, at the Office, 92, CANNON STREET, LONDON, E.C., and an Engine can be seen in work at the Factory, 4, VINE STREET, LAMBETH, S.

Now Ready, in One Volume, 4to, price £1 1s.,
THE FOURTH EDITION OF
CLEGG'S TREATISE ON COAL GAS,
 Illustrated by Numerous Lithographs and Wood Engravings.

The rapidly increasing sale of each succeeding edition of this Standard Work on Gas Lighting since its first publication in 1841, and its large circulation on the Continent and in America, shows the greatly extended interest of the subject, and that this Treatise has been found a valuable exposition of the various processes and apparatus employed in the manufacture and distribution of coal gas.

This edition has been carefully revised, and most portions of the work have been enlarged and re-written to adapt it to the present state of knowledge. Ten new plates and fifty additional wood engravings have been introduced, and one-third of new matter has been added to the letterpress. Though this "Treatise on Coal Gas" has thus been considerably enlarged, the publishing price has been reduced one-third.

LONDON: JOHN WEALE, 59, HIGH HOLBORN.

And to be had by order at the Office of this JOURNAL.

THE GAS-METER COMPANY
 (LIMITED), LONDON,

(Successors to CROLL, RAIT, and CO., LONDON, and WEST and GREGSON, OLDHAM.)

STATION-METERS & GOVERNORS

At their Oldham Establishment, which has long possessed the reputation of supplying this description of apparatus of the most perfect construction and appropriate design.

CONSUMERS GAS-METERS IN CAST-IRON & TINNED SHEET-IRON CASES.

STREET GOVERNORS, PRESSURE and EXHAUST REGISTERS, TEST GASHOLDERS,
 AND EXPERIMENTAL GAS APPARATUS GENERALLY.

For information, &c., apply to

W. ARCHER, Manager, Meter Factory, OLDHAM;

OR TO
 GEORGE RAIT, Managing Director, KINGSLAND ROAD, LONDON.

NATURAL OXIDE OF IRON.

Messrs. W. DAWBER & SON,

QUEEN'S DOCK, HULL,

Who with several Gas Companies successfully opposed the prolongation of Mr. F. C. Hills's Patent for the Purification of Gas by Artificial Oxide of Iron, respectfully inform Directors of Gas Companies, Gas Engineers, and all interested in using the cheapest and most effectual material for the Purification of Gas, that they are now prepared to supply the NATURAL OXIDE OF IRON at a price per ton delivered, or to take Contracts by the ton of coal carbonized, receiving back the spent material.

References to several London and provincial Gas Engineers of the highest eminence can be given on application to W. DAWBER & SON, to whom all orders should be addressed.

Queen's Dock, Hull, March 28, 1864.

WARNER'S
PATENT ANHYDROUS OXIDE OF IRON

Purifies Gas from Sulphuretted Hydrogen, Carbonic Acid, Bisulphide of Carbon, and Ammonia. The Hydrogen liberated through the decomposition of the Ammonia unites with the excess of carbon, giving increased brilliancy and yield of Gas with less smoke and no Naphthaline.

PRECIPITATED OXIDE OF IRON,

Prepared by the process as patented by Mr. Hills, supplied where preferred.

A. WARNER, 17, Laurence Pountney Lane, London, E.C.

WARNER'S SILICATE OF IRON PAINT.

The peculiarities and advantages of this Paint are that it will stand extreme heat and damp, and is not affected by the strongest Acid, Sea Water, Sulphuretted Hydrogen, or Ammonia. It is equally well adapted for Iron, Wood, or Cement. Every shade of Colour ground to order. The LIGHT STONE COLOUR will retain its SOFT DELICATE SHADE regardless of the fumes of Gases. IT HAS NO SMELL, and there is an entire absence of deleterious effect.

THE SILICATE OF IRON POWDER, when boiled up with Tar and Lime, is a very cheap preservative for Iron, Wood, and Felt Roofing, and is recommended for Gasholders which have been coated with Tar.—Price £8 8s. per ton.

TO CORPORATIONS, GAS ENGINEERS, AND OTHERS.

HENRY ALDER,

GRANGE METER-WORKS, EDINBURGH,

Begs to intimate that he has introduced the manufacture of DRY GAS-METERS in

CAST-IRON CASES.

These Meters are protected by registration under the "Copyright of Designs Act." They are much more durable, and at the same time more easily repaired than those in Tin Cases.

Price list and terms on application.



**ANOTHER
MEDAL AWARDED BY THE JURY, INTERNATIONAL EXHIBITION,
1862,
To THOMAS GLOVER,
SUFFOLK STREET, CLERKENWELL GREEN, LONDON.**

THOMAS GLOVER has great pleasure in informing Gas Companies and his other Patrons, that the *Jury of Class XXXI. of the International Exhibition of 1862* have awarded, for his Patent Dry Gas-Meter, a *Prize Medal*. The reason given for this Award, in the *Juries Official Report*, is, "*For excellence of manufacture, as regards Dry Meters.*" See *Official Report*, p. 346.

It is worthy of remark, that the only two other Firms who receive Awards *both manufacture imitations of Thomas Glover's Patent Dry Gas-Meter*, and the reason given for these Awards is "*construction and sound workmanship.*" Thomas Glover, therefore, claims that the *construction of his Meter has obtained three Awards from the Jury of the International Exhibition of 1862*; at the same time, *contrasting the Award granted for his Meter by the words, "For excellence of manufacture, as regards Dry-Meters."*

The Prize Meter was exhibited in *Class XXXI., No. 6301*, connected with a 1-foot holder, to demonstrate that a 50-light Meter *measures and indicates accurately the small quantity of One Foot.*

WILLIAM PARKINSON AND CO.

(SUCCESSORS TO SAMUEL CROSLEY),

PATENT WET AND DRY GAS-METER MANUFACTURERS, &c.

COTTAGE LANE, CITY ROAD, LONDON, E.C.

Established 1816.

PATENT IMPROVED WET METER.

W. P. and Co. invite especial attention to this Meter, which entirely overcomes the difficulty to which ordinary Wet Meters are subjected, owing to the short range of the Float, which is necessary, in order to meet the requirements of the Sale of Gas Act.

"It is well known that n Meters constructed so that the valve will close when the water is drawn off to such a point as to render them 3 per cent. slow the lights are liable to be extinguished by the closing of the valve by a sudden increase of pressure. To meet this difficulty, Mr. Finchbeck has invented an ingenious and simple arrangement by which the action is reversed, and any such increase of pressure, in his Meter, raises the valve instead of depressing it. The fact of the improvement having been adopted by Messrs. W. Parkinson and Co. is a sufficient guarantee that it practically and effectually remedies the inconvenience it is designed to meet."—JOURNAL OF GAS LIGHTING.

PATENT IMPROVED DRY METER,

Which W. P. and Co. pledge themselves to manufacture with the same quality of materials and workmanship as in their Wet Meter, thereby giving Gas Companies and others the advantage of procuring a first-rate Dry as well as a Wet Meter, which, hitherto, they have been unable to do.

STATION-METERS AND GOVERNORS.

Which can be seen at all the London Gas-Works. Also Liverpool, Manchester, Sheffield, Nottingham, Belfast, Glasgow, Birmingham, Dublin, Bristol, Leeds, Leicester, Brighton, Southampton, Sunderland, Wolverhampton, Bradford, Norwich, &c., &c.

**TEST GASHOLDERS, EXPERIMENTAL METERS, EXHAUSTER REGULATORS,
MINUTE CLOCKS, PRESSURE GAUGES, PHOTOMETERS, PRESSURE REGISTERS, &c.**

CONTENTS.

Notes upon Passing Events:—	PAGE
Hints for Holiday Makers	581
The Bill for Improving the Dwellings of Artisans and Labourers	582
The Wimbledon Volunteer Meeting	582
Indian Irrigation Works	583
Australian Water Supply Projects	583
Mr. Gregory and the Irish Railways	583
The Officials of the Old and the New Government	583
Circular to Gas Companies:—	
Rejection of the Bill for Amalgamating the Chartered and City Gas Companies	583
The Imperial Gas Bill, No. 3	583
Notes on the Report of the Select Gas Committee of 1866 by a Shareholder	584
Contemplated Advance in the Price of Gas in Scotland	584
The Hamburg Gas Company	584
Dismissal of the Gas-Meter Inspector of Kingston-on-Thames	584
The New President of the Poor-Law Board	584
The Opposition to the Reappointment of Dr. Letheby as Gas Analyst for the City of London	585
Revival of an Old Scheme for Making Gas from Cocon-Nut Shells	585
Correspondence:—	
British Association of Gas Managers—Hot-Air Burners	585
Register of New Patents:—	
Crutchett, J.—Manufacture of Gas	585
Gedge, W. E.—Double or Single Action Pumps	585
Bastier, J. U.—Apparatus for Raising Liquids	585
Brooman, R. A.—Liquid Compound for Purifying Sea and other Waters	585
Mott, A. J.—Production and Uses of Carbonic Acid Gas	585
Lenk, C. G.—Purifying and Preserving Water	585
Abel, C. D.—Rotary Pumps	586
Baggs, I.—Inflammable Gases	586
Bateman and Garrard—Pumps	586
Larkin, H.—Lamps for the Combustion of Magnesium	586
Meldrum, E.—Distillation of Coal and Shale	586
White, D. B.—Ventilators	586
Deslandes, A.—Metallic Pipes, Tubes, &c.	586
Soott, H. Y. D.—Deodorization of Sewage Water	586
Wood and Barrett—Purifying Gas	586
Webster, J.—Generating and Applying certain Gases	586
Brett, W.—Truck or Barrow for Wheeling and Tipping Coke, Coal, &c.	587
Applications for Letters Patent	587
Grants of Provisional Protection	587
Notices to Proceed	587
Patents which have become Void	587
Parliamentary Intelligence:—	
Progress of Bills in House of Lords	587
Progress of Bills in House of Commons	587
House of Lords Committee—Gaslight and Coke and City of London Gaslight and Coke Companies Bill	588
Legal Intelligence:—	
Vice-Chancellor's Court—The Imperial Gaslight and Coke Company v. the West London Junction Gaslight Company, Limited, and the Great Western Railway Company, and their Secretaries	592
Court of Bankruptcy— <i>Re Tom Abercrombie Hedley</i>	593
Miscellaneous News:—	
Meeting of the European Gas Company	594
Metropolis Gas Supply—City of London Court of Sewers	595
Conviction of a Gas Company for Supplying Impure Gas	595
Probable Advance in the Price of Gas in Scotland	595
Dr. Whitmore's Report on the Quality of the Gas supplied in St. Marylebone, in June, 1866	595
Dr. Whitmore's Report on the Quality of the Water supplied in St. Marylebone, in June, 1866	595
Accident in Paris by the Ignition of Naphtha	595
The Lenoir Gas-Engine	596
Dismissal of the Kingston-on-Thames Gas-Meter Inspector	597
Price Current	597
Share List of Metropolitan Gas Companies	598

NOTICES.

The subscription is 15s. per annum, if paid in advance during the month of January, or 18s. credit, in two sums of 9s. each, in July and January of each year. Post-Office orders must be made payable at the Charing Cross Money-Order Office, to William H. Bennett, No. 42, Parliament Street, Westminster.

The next number will be published on Tuesday, Aug. 7, and the subsequent numbers on each successive alternate Tuesday.

This JOURNAL has been duly registered at the General Post Office for transmission abroad.

All Communications to be addressed to the Editor, No. 42, Parliament Street, Westminster; and orders for Advertisements to the Publisher, Mr. W. B. King, No. 11, Bolt Court, Fleet Street.

THE JOURNAL OF GAS LIGHTING, WATER SUPPLY, & SANITARY IMPROVEMENT.

TUESDAY, JULY 24, 1866.

Notes upon Passing Events.

At this time of the year, when travelling for amusement is in season, and in this particular year, when so much of the Continent is closed to those who like to be sure of a conveyance, a

bed, and at least one good meal every day, it may be useful to extract from a French review some account of a Pyrenean watering-place which has not yet been completely appropriated by the English. Mont Vallier is one of the points of the Pyrenean chain, standing like a sentinel on the direct route from Toulouse into Spain. Under its shadow are the high valleys of Couserans. In these valleys are villages, poor, little known, and little worth knowing. But one of them, *Aulus*, has become famous for mineral waters which have great virtue in strengthening exhausted constitutions, and, as it were, galvanizing vital energy. These waters are pleasant to drink and have no metallic after taste, but leave a yellow ochreous deposit on the cup, which has a very disagreeable appearance. Their value was discovered by accident in 1823, when detachments of the French army were posted, under the name of a sanitary cordon, along the line of the Pyrenees. One of the detachments quartered at Aulus was under the command of a young lieutenant, who, in consequence of disease and unwise medical treatment, was in an almost desperate state. Walking one day in the valley which stretches out below the hamlet at the place where the baths now stand, he came across an unpleasant looking spring almost hidden by flags and rushes. A margin of reddish slime marked the bed of the rivulet, air bubbles rose from the bottom and floated away amongst the herbage. A population of frogs, toads, and water newts, clustered about the banks of the waters, attracted by the tepid temperature. The peasantry never ventured either to wash or water their cattle at this spring. The lieutenant, who had some knowledge of thermal waters, suspected that this was a mineral spring. He drank four or five cups of it, and very soon found by his uncomfortable sensations that at any rate it was not common spring water. The next day he dug out enough of the bed of the rivulet to be able to bathe, and in the course of a month's perseverance in drinking and bathing in the ochreous stream, he entirely recovered his health and became quite fat. The news of this extraordinary cure spreading amongst the officers and surgeons of the army founded the reputation of Aulus. It is a curious fact that the owner on whose land this famous spring was discovered had travelled to several bath towns for the cure of pains which were only removed when he applied his own waters. In 1865 the baths of Aulus were visited by 1900 patients. Aulus, besides its springs, has in its environs some of the most picturesque scenery of the Pyrenees—impetuous torrents, grottoes, forests, lakes, and mountain barriers crowned with eternal snow. Amongst the falls of water are some of remarkable beauty and grandeur. Until recently, the chamois, or izzard, the wild goat, and the bear, were not uncommon; but the demands of the water-drinkers for chamois ragouts and the persecutions of sportsmen are rapidly destroying these last living remains of a truly wild and savage country. The tame goat formerly occupied an important place in the domestic arrangements of the peasantry; until very recently every family had at least one she-goat, and the invalids who resorted to Aulus were wakened every morning by the song of the goatherd. At the first notes of the horn every goat left her stall to join the herd. The day was spent in skipping from rock to rock in search of grass and shrubs. In the evening the flock returned to the village in a long file. The herd marched first, his goats followed, and he never looked behind, as he knew that each would find her own dwelling, and that, when he reached his own hut, his own only would remain. But this branch of pastoral life is about to disappear under the influence of what, for want of a better term, may be called sanitary laws. "It was," says the writer of the article, "time; for the goats did enormous harm to the "country." It is one of the objects of the French Legislature to encourage the growth of wood on the mountains. The entire chain of the Pyrenees was, according to the accounts of Diodorus Siculus, covered with dense forests when the Iberians first drove their herds there. The first colonists set fire to the forests, either to clear them away for cultivation, or to help them in collecting the small nuggets of gold which were found in the chinks of the granitic soil. The unprotected soil, subject to the direct action of the sun's rays, and no longer held together by the roots of trees, slipped away continually under the pressure of avalanches, melting snow, glaciers, and torrents. To replant the mountains was the only means of arresting the progress of denudation and consequent total barrenness, but that was impossible as long as herds of goats pastured over the mountains, for it is the particular delight of this animal to crop growing shrubs. A few years ago a law

against goat-keeping was put in force, to the extreme disgust of the peasantry, who avenged themselves in their own way. At the elections of 1865 they turned out all the municipal council. They marched up to the ballot-box with a degree of unanimity hitherto unknown in that part of the world, and replied invariably to those who inquired for whom they voted, "*Pourtan les que soun pellas crabos*"—"We vote for those who are for the goats." Thus they tried to avenge themselves on the Government. The word *government* embodies all the peasant's idea of politics. Government in his eyes is an omnipotent monster, of a meddling disposition, with no feeling for poor people, who levies taxes, sends gendarmes, and lives in Paris.

The bear has not entirely disappeared from the mountains of Aulus, and when one is slain the demand of the Parisian cockney for bear's flesh raises the price to something like seven francs a pound. But it is seldom worth eating. A young bear may be tolerable, and retain, according to the tradition of *gourmets*, something of the flavour of the strawberries, raspberries, and cranberries on which he feeds; but the flesh of an old bear is rank and nauseous. The dancing bear is an established institution in the Pyrenees, and often forms the whole fortune of a family. When a girl marries she receives a bear's cub as her dowry; her husband trains it, and, when its education is completed he takes it on a tour, and, if economical, often returns home with a small fortune. But the greatest zoological curiosity in old Couserans is the peasant of Aulus—a specimen of a tribe almost extinct. He cannot be studied to advantage in the village, corrupted by contact with bath visitors, but at the foot of the snowy regions, in the midst of his cows, at the moment when he offers you a bowl of milk. His features are regular, his expression serious and decided; his nose, sharply hooked, gives the idea of a bird of prey or of a conquering race. The old Pyrenean costume sets off his lofty stature. It is the same as that of his neighbour, the Catalan muleteer, but the presence of snow has made the stuff thicker, and modified the colour. All the garments are cut from one piece of cloth, of an earthen-grey colour. A broad sash of red or blue contrasts with his gaiters. The gaiters up to the breeches leave the knees bare when he is sitting down. A round hat with enormous brims turned up all round is placed on his Phrygian cap, and serves him as a parasol in summer and an umbrella in winter. On days of ceremony he casts over his shoulder an enormous tawny cloak, an heirloom transmitted from generation to generation. These hardy pastors remind one of the Gauls of early history, before whom the ancient world trembled. The descriptions of Cæsar, of Diodorus, and Livy seem realized. These are the descendants of the bold race whom Brennus and other chiefs led to the storm of the Capitol, to the sack of Delphi, and to the conquest of the rich empires of the West. It is from these mountaineers that the inhabitants of Bordeaux, Toulouse, and Marseilles obtain their porters and labourers. Those who remain in the villages migrate in summer with their live stock to the mountains. They make a wretched hut of turf and brushwood, into which they are obliged to creep on all fours, and sleep on a bed of dry leaves. The fine weather is employed in feeding their herds and making cheese. In July and August they make hay and store it for the winter. They live on black bread and the whey left from the cheese. On the first occurrence of frosts they descend into the valley, shut their animals up in stables, and twice a day go from the village to the grange to feed and tend them. This work done, you see them standing about the village, their hands thrust in their broad blue woollen belts or resting on a long staff, motionless, impassive, their feet in the snow, their faces bare to the cold wind of the mountains—they look like the patriarchs of the Old Testament gathered together at the gates to discuss the affairs of the city. Here they have not many topics—whether the provender will last out the winter—whether the Government will continue to impose on the ancient rights of the commune. To this mode of life their lofty stature is attributed. Almost all the recruits from this district go into the heavy cavalry. "As you descend from the pastoral to the agricultural region, the height of the population diminishes." Is this so in Scotland? We doubt it. "The women are equally tall and strong, and wear a costume like the Grey Sisters." But this costume, still universal in the higher valleys of the Couserans, has been almost abandoned at the watering-place of Aulus in favour of French fashions. But habits and customs are more difficult to change

than costume; regular work is repugnant to this tribe of shepherds and herdsmen. Almost all the hotels are kept by the inhabitants of St. Girons in the lowlands, and women of the valleys bring eggs, poultry, vegetables, and fruit for sale. The writer says that he has only known two persons who have availed themselves of the demands created by the resort of strangers to the mineral waters—a father and son, who have become professional fisherman, and supply trout which abounds in the mountain streams. All the rest of the male population follow pastoral pursuits. In the exploration of the lakes, glaciers, and cascades, you often come across a hut on the borders of a stream, and nearly hidden by surrounding rocks. The inhabitants are not far off. As soon as you are seen the young herdsman appears, his lips stained with wild cherries or bilberries, and offers you "*mountain milk*." He takes from a corner of his cottage an earthenware jar of the freshest cream—a small carved wooden ladle serves for both spoon and bowl. When you examine curiously this primitive specimen of mountain manufacture, he offers to sell it, and observes that "last year a Parisian paid forty sous for one like it." The highest hope of these poor people is to obtain a few pence. The greediness characteristic of an extremely poor country produces curious results in the course of the bargains for purchasing land and erecting baths. A field containing a doubtful spring would often be the joint property of ten peasants. If one agreed to part with his share, the other nine often asked such a price as to render a sale impossible. Some years ago, a capitalist from Toulouse thought of establishing a company to erect a complete bathing establishment, after the fashion of the German towns. After many interviews, he had settled to purchase a suitable spring and plot of ground, but on meeting at the notary's to close the bargain, the wife of the peasant declared that she must have as much as her husband. After further negotiation, the Toulousian agreed, and all seemed settled; but, at the last moment, the mountain pair claimed to have a fourth of the future profits. "I intend," said the Toulousian, "to put down £1000, and you shall have a fourth of the income." "Impossible, my kind sir," said the herd; "we have not a farthing, but we are strong, and when we build my wife and I will work as labourers." It took time to teach these semi-savages that strangers brought prosperity; the first visitors were pelted when they ventured on a walk in the environs. Now they know better, and arrange their charges according to whether a visitor is from Toulouse or Paris. The Parisian is their idea of a millionaire, and is charged twice as much for lodgings as any inhabitant of the neighbouring district.

The Bill for improving the dwellings of artisans and labourers introduced by Messrs. Torrens, Locke, and Kinraid, is of a more revolutionary character as regards the dwellings of the labouring classes than any measure suggested during the present generation. We are not sure that it is any the worse on that account—serious diseases require strong remedies. Wherever an officer of health has not been appointed, the appointment is made compulsory. It becomes the business of the officer of health to report on every dwelling that he considers injurious to health. But if he neglects to report, then any four householders may report. Such reports to be delivered to the clerk of the peace or his representative. The clerk must bring it before the Court of Quarter Sessions, or stipendiary or other local magistrate. The magistrate may order a survey and plan and specification of work required, and, unless the owner's opposition is successful, further order the execution of the same. The owner must execute the improvements, repairs, or demolition, or sell the property to the local authorities, who may execute themselves what the owner refuses to do. If the owner demolishes condemned buildings, he cannot re-erect without his plan of lodging-houses or cottages being approved. The Public Loan Commissioners to have power to lend to local authorities for the purposes of the Act. There is plenty of work for an active committee of philanthropists, with a staff of a sharp lawyer and an ambitious architect.

The institution of the Volunteer army, amongst other useful effects, has exercised a useful influence on military reform. An intelligent public opinion has been created on all practical subjects, for example, the trials of breech-loaders at Wimbledon has been on a scale and by a number of intelligent deeply-interested persons, which cannot fail to be of material use to the Government in coming to a decision on the future small arms of our army. The Wimbledon encampment represents

all the degrees and shades of society—the power of publicity and discussion is largely exercised—mechanics can advocate their inventions and improvements without official check—the press records all that takes place, and present and future legislators collect the best kind of evidence for use in parliamentary debates. It is a sign of the times and of the latest form of competitive examinations that General Peel, once of the stiff stock and close-shaved school of stay-at-home soldiers—one of those who viewed with dislike all the military changes introduced after the Crimean War, and once especially cold toward the Volunteer army—now comes out hot and strong as a reformer of military arms and accoutrements, following the lead of his secretary, an earl, who has been actually trained in camps.

How hard it is to get at any truth about public works in India. We have long been taught to believe that General Cotten's irrigation works in Madras were remunerative in the highest degree, paying 50, 60, and 100 per cent. on capital. For the success on the Godavery, General Cotten was promoted and decorated. At one time General, then Colonel, Cotten formed a school of Indian reformers, whose theory was not only to promote inland navigation and irrigation, but to oppose the guarantees on which Indian railroads have been executed. General Cotten was all for water, and could not bear the sound of a railway whistle, which he looked on as the signal of waste money as well as steam. When introduced to state his views at the Institution of Civil Engineers, many years ago, he could not be brought to see that railways would "rip up" the Indian peninsula with a power and effect that no other improved means of locomotion could, and so prepare for roads and water-ways. He was for water, and water only. There was another school, who maintained very stoutly that railways in India could never pay, and they proved it—on paper—very completely. Now, as to railways, time has silenced the croakers. Sixty millions sterling have been laid out, with admirable results, commercial and military, and on this vast sum only half a million a year has to be paid to make up the guaranteed 5 per cent., and even this charge will disappear in a few years. But, as to the irrigation works, although no one ventures to say that they are not as essential and profitable as thorough drainage in our sticky soils, Mr. Smollett, once himself an Indian collector in the Madras Presidency, declares that the profits of 50 and 100 per cent. are all fudge, and the result of cooked accounts, which, by order of superior authority, he had helped to cook! No one contradicted Mr. Smollett as to his most serious charges, but then there was no old Indian present except Mr. Ayrton, from another presidency. Lord Cranborne, the new Indian Minister, instead of being, as country politicians expected, one of the "Old Rock" opponents of all change, passed over for the present the per centage part of the irrigation question, and boldly committed himself to a policy of "peace and public works," in which irrigation must hold a large place.

We observe, by the last Australian news, that Victoria, the most wealthy and enterprising of the group, has determined to spend a million of money in storing water throughout the colony, for domestic and agricultural purposes. The rainfall of Australia on an average of years is ample, but the conformation of the country affords little natural storage. Victoria has always been in advance in the matter of public works. If this storage experiment succeeds, it may alter the character of the cultivation throughout Australia. In Queensland, it is proposed to try artesian wells in the districts below the Darling Downs range. The experience of the French in the deserts on the outskirts of Algeria affords encouragement to the attempt.

Mr. Gregory has not allowed the session to close without pressing upon the Government his favourite idea of a purchase of all the Irish railways and a large reduction of fares at Government expense. We are not prepared to say that, looking at the peculiar condition of Ireland and the small amount of capital invested in Irish railways, there may not be sound arguments for treating the railway system in an exceptional manner, and for considering the propriety of a loan on condition of large amalgamations, large reductions of staff, and a rational regulation of fares. But Irishmen who advocate this kind of Government interference should be reminded that it involves an acknowledgment of the inferiority of the Irish to manage their own affairs; it means that our Irish directors are such jobbers in their purchases and appointments of offices—are so litigious and incapable of arranging traffic agreements

and amalgamations for mutual advantage of shareholders—look at railway business so entirely as a means for providing for directors, their friends, and relations—that, like the frogs, we must apply to the English Jupiter for a king. This is what the complaints of Irishmen as to the railway management imply. We wait for the full evidence taken by the Railway Commissioners before deciding how much of commercial worth there is in these railway groans.

If the Admiralty were held in shares, decidedly the stock would have risen in value in consequence of the change of Administration and the debate of the 20th in the House of Commons. When, many years ago, the Radical free-trader, Mr. J. B. Smith, called the attention of the then Secretary at War, Mr. Fox Maule, to the needle-gun which has lately changed the face of Europe, his answer, without looking round, was, "We know all about it." But "we" did not know anything about it, as time has proved. There has been too much of "we know all about it" in the Admiralty department. Even now Lord John Hay thinks that the inventor of turret ships was cordially received. But the manner in which the suggestions of Mr. Samuda, Mr. Laird, Sir Morton Peto, and Mr. Graves, were received by Sir John Pakington and Sir John Hay show that we have to deal with men who have a reputation to make and know it. The fate of the Italian fleet will afford some further facts as to both guns and armour plates. We shall probably no longer have all the inventive talent of the country subject to the arrangements of one, and that a rival, inventor at the Admiralty. This discussion shows a turning-point in the history of our Administration. Intelligent outside opinion is no longer to be pooh-poohed by officials, whose chief qualification is their office.

Circular to Gas Companies.

THE House of Lords having rejected the Chartered Company's Bill, seeking for power to erect gas-works at Hackney Wick, have since rejected the Bill for the amalgamation of that company with the City Gas Company, partly on the ground that the advantages proposed to be gained by the amalgamation would be rendered in a great measure nugatory from the want of the new site of the works. Such, at least, was one of the objections raised by the counsel for the Corporation of the City of London, who petitioned against the Bill. With a new site, he observed, there would no doubt have been a great public advantage in the amalgamation, but as the site Bill had been lost, and nothing further could be done in the matter until next session, it was not desirable the amalgamation should take place. The main objection, however, that was raised to the Bill by the Corporation was, that an amalgamation of the two companies would have an effect in obstructing any bargain they might wish to drive with each company separately. It was contended that some general measure respecting the supply of gas to the metropolis would be introduced next session, and that the carrying into effect of any future measure for an amalgamation of all the gas companies would be hindered by the passing of the Bill. Mr. Webster, the counsel for the Corporation, therefore, prayed the committee not to pass it this session, as it would be obstructive to future legislation. This argument had more weight with their lordships than the evidence produced, to the effect that by the amalgamation the united company would be able to supply better and cheaper gas to the public, as there would be economy in every detail of the manufacture. The committee, after a brief consultation, decided that it was not expedient to proceed further with the Bill, which is consequently lost, and the two companies are left to get on as well as they can with their present means of supplying a rapidly increasing demand for gas. The City authorities may chuckle at the present success of their factious opposition to the gas companies; but it will be for the citizens, in their calmer moments, to reflect whether their interests have been promoted by these unworthy attempts to obstruct the gas companies in their endeavours to place themselves in a better position to fulfil their obligations to the public, and to remove to a more convenient and really unobjectionable locality the works that are now surrounded by a dense population.

The Imperial Company, though defeated in their two first attempts to obtain additional powers, have at last succeeded in carrying a third Bill through both Houses of Parliament. The Bill No. 3 is limited in its objects to authorizing the company to raise more money to enable them to discharge existing

liabilities and to fulfil the obligations imposed on them. They are authorized to increase their present capital of £1,300,000, by the creation of new shares, to an amount not exceeding £325,000, bearing a maximum dividend of $7\frac{1}{2}$ per cent., and to borrow on mortgage £81,250. The new shares are to be apportioned among the existing shareholders, at par, and are to be of such a nominal amount as will allow of their being so apportioned. No money is to be borrowed until the whole of the additional capital has been subscribed for, and one-half paid up, and all former mortgages are to have priority. The company are also empowered to create and issue debenture stock. This Bill is identical with Bill No. 2, which failed in consequence of the Standing Orders Committee of the House of Commons having refused to recommend that the Standing Orders should be suspended in its favour. It appears that the committee ultimately yielded to the representations made to them, that part of the money was required to discharge obligations already incurred, and allowed a new Bill to be introduced. The Bill now only awaits the third reading in the House of Lords and the Royal Assent to become law, and the Imperial Company will then be relieved from the greater part of the financial difficulties in which they were thrown by the unforeseen rejection of their first Bill, which included among its provisions power to erect new works at Old Ford.

The remarks we made, on the 12th of June last, on the report of the committee instructed to inquire into the operation and results of the Metropolis Gas Act, have been reproduced, with considerable additions, in the form of a pamphlet by "A Shareholder in the Metropolis Gas Companies." The title of the pamphlet is, "Notes on the Report of the Select Committee," and the paragraphs of the report are quoted separately and commented on *seriatim*. The principal additional remarks are those on the 18th paragraph, wherein the committee recommend that the system of districts should be continued, and that, with a view to the economy of administration and the convenience of the consumers and of the public, every facility should be offered for the further extension of the system of regulated monopoly. "A Shareholder" properly observes that, though the committee suggest these new arrangements, it must not be inferred that any want of economy on the part of the companies, or any inconvenience to the consumers or to the public, has been shown to result from the existing state of things, for not a single witness attempted to establish anything of the kind. The case of the Manchester Corporation, it is remarked, "was put forward as a model instance to show what local authorities could do, but in truth it merely shows the effect of a gas monopoly undisturbed for fifty years; for, notwithstanding the extraordinary advantages which the Manchester Corporation have had in the mode of raising their capital, and in other respects, their representatives admitted, on cross-examination, that *Liverpool has been supplied more advantageously by a company, although monopoly there has not existed half the time it has at Manchester. If the London monopoly, like those of Liverpool and Manchester, be allowed to remain undisturbed, the price of gas must be continuously reduced, especially as the back dividends are now paid off.*" The presentation, in the convenient form of a pamphlet, of this defence of the metropolitan gas companies from the aspersions of the committee is all very well, and may do good service, but something more is wanted at the present time to disabuse the public mind of its unfounded prejudices against gas companies in general, and to show that the manufacture and distribution of coal gas is a business that requires much scientific and practical knowledge, and that the profits gained and divided by companies placed under parliamentary regulations are not greater than afford a reasonably adequate remuneration. The gas companies would do well to secure the services of some popular writer to state their case plainly and briefly, and to expose the fallacy and absurdity of erroneous, and often interested, misrepresentations, and the nonsense and the twaddle that are spoken and written on the subject.

The continued advances in the rates of wages and the price of coals, and other items which regulate the cost price of gas, are beginning to tell on the balance-sheets of gas companies, and it will be perceived, from a paragraph copied in another column from a Scotch paper, that the Edinburgh and Leith Company and the Dundee Companies have been obliged to diminish their dividends, and that throughout Scotland the gas companies are affected more or less by the same causes, which must in a short time compel them to raise the price to con-

sumers. These circumstances prove that some margin should be left in fixing the parliamentary maximum price to be charged to consumers, to provide for such contingencies; and that companies who, like the Brighton and Hove Company, have accepted a maximum which at the present rates of wages and materials will yield them only a bare profit, may have that little entirely absorbed by advances on the current rates.

Gas companies on the Continent generally fare better than in the United Kingdom, though, as most of them are established by concessions for fixed periods, the terms of their existence and prosperity are limited, and some of them are approaching an end. The Hamburg Company have recently declared a dividend of 42 per cent. on the last financial year, and there are eight years of the concession yet to run. The price charged to private consumers is 7s. 2½d. per 1000 feet in English money and measure, while the public lights are supplied at the extremely disproportionate price of 2s. 11½d. This rate of dividend is by no means an extraordinary instance of the prosperity of the Hamburg Gas Company, for in 1863 they divided 38, and in 1864 41 per cent. The quantity of gas sold during the last year amounted to 435,169,180 Hamburg cubic feet.

The Kingston-on-Thames Corporation have at length put a stop to the anomalous, if not illegal, course they adopted in 1861, of appointing an inspector of meters who was to be remunerated not by a fixed salary, but by fees received for stamping meters for London manufacturers. The Metropolitan Board of Works naturally felt aggrieved at having the business of their inspecting officers taken from them by competition in meter stamping at Kingston, but so long as the trade was carried on within the borough they could not put a stop to what was, in principle at least, a contravention of the Sales of Gas Act. When, however, the meter inspector of Kingston took offices at Camberwell to carry on the business of meter stamping there, with the stamp of the Kingston Corporation, and thus brought his competition with the Metropolitan Board close to their own station in the district, such a glaring departure from the provisions of the Act could be no longer tolerated, and after one or two ineffectual attempts a conviction before a police magistrate was at length obtained, and Mr. Taunton was fined £5 for having stamped meters out of his own district. The Board then made a representation of the case to the Kingston Corporation, stating that they were advised by counsel that the Corporation were responsible for the fees illegally received for stamping meters, and that should the Corporation countenance Mr. Taunton's further proceedings, steps would be taken against them "for acting in conspiracy with Mr. Taunton." That gentleman was accordingly summoned to attend a meeting of the Lighting Committee at Kingston, but he did not appear, and in his absence he was suspended from his office. That occurred on the 17th of May, after which a correspondence took place between Mr. Taunton's solicitors and the town-clerk of Kingston, and it was intimated to the Corporation that they had rendered themselves liable to an action for damages for having made representations injurious to their client. This correspondence is transferred to our columns from a local paper. At a meeting of the Town Council of Kingston on the 12th inst., the correspondence was laid before them, and a resolution was carried for the dismissal of Mr. Taunton from his office of meter inspector for the borough. No successor has yet been appointed, and the stamp No. 45 cannot, therefore, be lawfully used. The purchasers of meters so stamped should, for their own security, require from the manufacturer a guarantee that the meters were stamped within the borough of Kingston before May 17th, the date of Mr. Taunton's suspension from office.

The appointment of Mr. Gathorne Hardy, Q.C., to the presidency of the Poor-Law Board will raise the expectations of all who suffer from the interpretation given by the Courts at Westminster to the Parochial Assessment Act. Being himself a distinguished lawyer, chairman of quarter sessions, and formerly, if not at present, largely interested in industrial undertakings, he cannot fail to have perceived that establishments of which the owners are also the occupiers are substantially rated on their profits, while other properties are rated on their hereditaments only. The judges have repeatedly pointed out the unsatisfactory state of the law, and have expressed the hope that it would be amended, but no one has hitherto been willing to undertake the task. With practical men in office like Mr. Hardy and the new Solicitor-General, there is at last some chance that justice may be done; and we recommend that

before the prorogation of Parliament a movement should be made by gas and water companies with the view of obtaining relief from the present mode of assessment.

The gas agitators among the Commissioners of Sewers of the City seem to possess an unblushing amount of assurance, and venture to make propositions at the meetings of the court which few persons who have any regard to personal respectability would hazard. It might be supposed that after the exposure of their attempts to intimidate Dr. Letheby for having told some unpalatable truths to the committee on the Metropolitan Gas Act, they would have been glad to let the matter drop, and not again have manifested their desire to avenge the downfall of the Corporation gas scheme. But when the question of continuing the appointment of Dr. Letheby as gas analyst of the City came before the Court of Sewers last week, about half a dozen of the most rabid of the agitators pertinaciously endeavoured to obstruct the appointment. In the first place, it was proposed to reduce the salary of the office from £200 per annum to £100, though the latter sum is paid by Dr. Letheby to an assistant. Another proposition was, that the assistant should be appointed, instead of Dr. Letheby; and again, that the appointment should be limited to three months. All these factious propositions, however, were rejected, and the original motion—that the appointment, at the full salary, should be continued to the end of the year—was carried. Unfortunately we had no reporter present, and we are obliged to take the report of what occurred from the *City Press*, which, we understand, very inadequately represents the disgraceful commotion raised on the occasion by the rampant dissentients.

A sensational paragraph, headed "Gas for Less than Nothing," has been going the round of the country papers, and has excited some curiosity. The paragraph is to the following effect:—

GAS FOR LESS THAN NOTHING.—There is at present to be seen, at 16, Newton Street, High Holborn, an extraordinarily simple little contrivance, by which it is shown that gaslight, about the cost of which and the grievances connected with which so much has lately been said, can be manufactured for positively less than nothing. The discoverer of this latest gas manufacturing improvement is Mr. Russell, a gentleman well known in the world of ingenuity as a patentee of several remarkably useful and publicly beneficial inventions. If Mr. Russell's new gas possesses half the advantages he claims for it, and which he certainly seems to prove pretty clearly at his temporary works in Newton Street, it will create a revolution in our present means of producing artificial light of an extensive character. Visitors to the temporary works at Newton Street, will find that Mr. Russell can prove to them that he is able to extract gas from vegetable substances which, up to the present, have been treated as utterly useless, and which, better still, after producing the gas becomes matter of cash-convertible value, so that the more of the new gas one manufactures and consumes, the greater advantage it will be to him pecuniarily. If this be so, it only remains for us to come to the happy conclusion that we can light our houses with gas for less than nothing. Allied to this startlingly agreeable peculiarity, Mr. Russell claims for his "new lights" much superiority, in a variety of ways, over the gas at present in general use. Among them are its freedom from offensive smell, its cleanliness, in throwing off less carbon in the form of smoke or soot; its innocuous qualities being perfectly free from sulphur; the ease with which it can be adapted for domestic purposes, by the rapidity and absence of complication in the generation of the gas, the only thing necessary to enable a private family to make their own gas without burning more coal than is necessary for their ordinary cooking operations being one of Mr. Russell's geometrical ranges—not a very expensive article; and its illuminating power, which, besides being a pure, white, pleasant light, is said to be three times greater than the coal gas distributed to the public. The appliances necessary for the manufacture of this wonderfully cheap gas are remarkable for their simplicity and cheapness. The production of the gas by Mr. Russell's process seems to be plain and effectual enough. The only secret which Mr. Russell keeps to himself is the exact nature of the refuse matter by which he is enabled to produce such brilliant results. This part of the discovery will, of course, remain the property of the patentee. At all events the discovery seems to be an exceedingly important one, and the testing experiments to which the attention of the public is invited are very interesting.

From inquiries we have made it appears that Mr. Russell's gas is manufactured from cocoa-nut shells, and that a high value is attributed to the residual charcoal. The process is by no means novel, for as long ago as Feb. 12, 1829, Edward Heard patented "Improvements in illumination, or producing artificial light," and cocoa-nut shells were one of the substances from which he proposed to manufacture his gas.

Correspondence.

BRITISH ASSOCIATION OF GAS MANAGERS.

HOT-AIR BURNERS.

SIR,—Referring to the hot-air burner, illustrated in your impression of yesterday, and accompanied by a letter from Dr. Letheby, I write to say that I and some others had a burner exactly similar to that indicated as that of Bowditch, made and tested for economic consumption of gas in the year 1837, in Dundee.

Ness House, Cheltenham, July 11, 1866.

W. ESSON.

Register of New Patents.

2620.—JAMES CRUTCHETT, of Stroud, Gloucestershire, at present at Washington, U.S.A., for "Improvements in the manufacture of gas." Patent dated Oct. 11, 1865.

This invention relates to the manufacture of gas for lighting and heating purposes from coal and other materials. For this purpose the coal is reduced to small particles or powder by any suitable mechanical means, which powdered coal is injected in small quantities at regulated intervals into the retort or oven by means of a jet of steam, compressed air, or by other suitable mechanism arranged so as to throw it in at the front end or top of the retort as the coal dust is fed forward or supplied from a hopper. The pulverized coal may, if desired, be introduced into the retort or oven in combination with petroleum or other oils, together with sawdust or other carbonaceous materials forced or injected into the retort, as previously described; or petroleum or other suitable oils may be injected into the gas-retort by means of a jet of steam or otherwise.

2622.—WILLIAM EDWARD GEDGE, of 23, Southampton Buildings, Chancery Lane, London, for "Improvements in double or single action pumps." A communication. Patent dated Oct. 11, 1865.

The specification of this invention requires the aid of drawings to make it intelligible.

2632.—JEAN URSIN BASTIER, of Gower Street, London, civil engineer, for "Improvements in apparatus for raising liquids." Patent dated Oct. 12, 1865.

This invention relates to a former invention known as "Bastier's Chain Pump," for which letters patent were granted to Antonio Pelez, April 1, 1858, No. 692. The present improvements consist, first, in making the pulley over which the chain passes at the top with cogs, teeth, or projections to take hold of the links of the chain, and with three or other convenient number of recesses or cavities at the same distance apart as the discs carried by the chain, which recesses or cavities receive the discs as they pass over the pulley. The cogs, teeth, or projections are held between two plates secured to each other by bolts, so that when the teeth are worn out the plates and teeth may be readily removed and replaced by others. Second, in making each link of the chain with a tie-piece in the middle, in order that it may be the better held by the projections of the pulley. Third, in forming the chain in lengths of about a yard, more or less, and in connecting the end of each length to a plate running vertically through the disc by means of a pin and nut, which pin is passed through the plate and through the two sides of the link. Fourth, in forming the tube or column in which the liquid is to be raised, with a contracted part about 9 feet in length, more or less, at about every 50 yards, in order that the discs in passing through such contracted parts may produce a sucking action. The tube is formed by preference of cast iron enamelled, both inside and outside. Fifth, in constructing the discs as follows:—Two metal washers are secured by pins or otherwise to the vertical plate before mentioned, and hold between them three india-rubber washers, the middle washer of which is of larger diameter than the other two, while the bottom washer is thicker than the top one, in order that it may raise the edges of the middle washer after it has passed through each contracted part of the tube.

2646.—RICHARD ARCHIBALD BROOMAN, of 166, Fleet Street, London, for "An improved liquid compound for purifying sea and other waters." A communication. Provisional protection only obtained. Dated Oct. 13, 1865.

This invention consists of a liquid compound for purifying sea, ferruginous, and other waters, so that when used for feeding boilers incrustation may be prevented, and when for washing, scouring, and cleaning, their qualities may be improved. The composition is formed thus, and in or about the proportions stated:—2 lbs. of crystals of soda; 9 oz. of quicklime, slaked and pulverized; and 8 lbs. of water. These materials are placed in a pan and boiled for about an hour; the pan is then removed from the fire, the contents allowed to cool, and the liquid then drawn off clear.

2660.—ALBERT JULIUS MOTT, of Liverpool, wine merchant, for "Certain improvements in the production and uses of carbonic acid gas." Patent dated Oct. 16, 1865.

The materials from which, according to this invention, the carbonic acid gas is produced or evolved, are alum in the form of crystals and an alkaline carbonate in solution. That these materials may be beneficially employed in the production of the said gas special apparatus has been devised, in which two forces are constantly in existence—the one the pressure of a column of the said alkaline solution, and the other the pressure of the gas evolved when the said solution comes in contact with the alum crystals—and it is by the alternate predominance of these forces that the apparatus is rendered self-acting when once adjusted and carbonic acid advantageously produced as required.

2674.—CARL GUSTAVE LENK, of Dresden, Saxony, now residing at 6, Lawrence Lane, London, machinist, for "An improved process for purifying and preserving water." Patent dated Oct. 17, 1865.

To effect this process, about 12 parts of alum, about 32 parts of aluminate, either neutralized or not; about 2 parts of carbonate of soda, and about 1 part of solution of iron or of hypermanganate of potash, are dissolved in about 240 or 300 parts of water; and this mixture is poured into the water to be purified and preserved, in the proportion of 5 to 10 drops to the quart of water, according to the degree of its impurity, and all the organic and inorganic impurities are precipitated. If the water is for immediate use the alum and the aluminate only need be employed; but, if it is desired to keep it for any length of time, the carbonate of soda with the solution of iron or hypermanganate of potash should be added either to the mixture as above mentioned or to the water after it is purified. When the water has been purified it should be drawn off by means of a tube passing into the centre of the vessel, and raised slightly from the

bottom, so that no precipitated impurities can be drawn off with the water.

2706.—CHARLES DENTON ABEL, of 20, Southampton Buildings, Chancery Lane, London, for "Improvements in rotary pumps." A communication. Provisional protection only obtained. Dated Oct. 20, 1865.

This invention consists in constructing rotary pumps of a disc mounted on a spindle, and made to revolve inside a cylindrical casing, which disc fits with its flat sides against the flat sides of the casing, and is made at one point or at two opposite points of its periphery to come in contact with the inner circumference of such casing by means of suitable metallic or other packing, while between the other part of its periphery and the circumference of the casing there exists a considerable space in which the fluid is conveyed from the suction to the delivery pipe. A metal slide fitting closely against the sides of the casing, and passing through a slit in the same, rests with its edge upon the periphery of the rotating disc, being thus made to divide the space existing between the periphery of the disc and the circumference of the casing into two parts, with one of which the suction-pipe communicates, while the delivery pipe communicates with the other. The slide is capable of moving backwards and forwards through the slit in the casing, which slit is covered externally by a water-tight box or compartment formed or fixed to the casing, and in this compartment is a lever, to the one end of which the before-mentioned slide is connected; the other end of the lever is fixed to a spindle passing through a stuffing-box in the side of the compartment and carrying externally one or more levers, the end or ends of which is or are actuated by one or more cams fixed upon and revolving with the spindle of the pump-disc. The periphery of this cam or these cams is or are so formed that by their rotation they impart such motion to the external lever or levers, and consequently also to the lever inside the box on the casing, that the before-mentioned slide is thereby made to advance and recede through the slit in the casing, in exact conformity and in close contact with the periphery of the pump-disc, according as the latter in revolving recedes from and advances towards the circumference of the casing.

The apertures in the casing communicating with the suction and delivery pipes are situated quite close together, one on each side of the slide, so that as the part of the periphery of the pump-disc which is in contact with the casing passes the delivery-aperture and the slide, it also immediately passes the suction-aperture, and the fluid from the latter consequently at once begins to fill the enclosed space formed between the slide and the projection on the pump-disc, while at the same time such projection drives the fluid in the space in front of it to the delivery-aperture on the other side of the slide.

2719.—ISHAM BAGGS, of 54, Chancery Lane, London, electrical engineer, for "Improvements in the manufacture of inflammable gases and in their application to useful purposes." Patent dated Oct. 21, 1865.

This invention relates to certain improvements in the manufacture of inflammable gases, whereby such gases are obtained and rendered applicable to useful purposes in a simple and inexpensive manner. In the first instance, a retort or other appropriate vessel is filled with turnings, shavings, or pieces of iron, and submitted to the action of a furnace until the whole is brought to a red heat. There is then passed through the retort or vessel a jet of steam from a boiler, such steam being thereby decomposed, as is already well known, the result of such decomposition being the production of oxide of iron and hydrogen gas, which latter should be collected as it is produced in a gasholder. Carbonic acid gas, however derived or produced, is then passed through or over red-hot or ignited coke or carbon, arranged in suitable retorts or receptacles (as is well understood by persons acquainted with such operations and with the chemistry of the gases and the materials in question), and the same is then conveyed through the retort or vessel containing the oxidized iron, from which retort or vessel the hydrogen has been eliminated. The result of this operation is that one volume of carbonic acid gas in passing through or over the ignited coke or carbon, takes up an additional equivalent of the latter, and is thereby converted into two volumes of carbonic oxide gas, which latter gas then passing on through the retort or vessel containing the oxidized iron takes up the oxygen from the same, and is thereby again converted into carbonic acid, restoring at the same time the iron to its normal or metallic condition, capable of decomposing steam again. The process of oxidation and recovery can thus be carried on continuously for an indefinite length of time.

2745.—HYDE BATEMAN, of Barnes, Surrey, surveyor, and EDWARD GOOCH GARRARD, of Vauxhall, Surrey, wine merchant, for "Improvements in the construction of pumps for raising or forcing water or other liquids or fluids." Oct. 24, 1865.

This invention consists in a shallow cylindrical-shaped water chamber or vessel divided circumferentially into two parts, one of which is fixed and the other moveable by means of a lever, which projects therefrom through the outer casing of the pump.

2786.—HENRY LARKIN, of 6, Torriano Cottages, Leighton Road, London, for "Improvements in lamps for the combustion of magnesium, and in preparing magnesium for burning." Patent dated Oct. 28, 1865.

In order to obtain light from magnesium the metal is employed in a state of powder, and the lamp is so arranged as to supply a continuous stream of the powder. The light is produced by the combustion of this stream of finely divided metal. At the upper part of the lamp is a funnel or reservoir in which the finely divided metal is placed, and it flows out at a small orifice at the bottom of the funnel or reservoir. The stream falls through a tube considerably larger in diameter than the orifice of the funnel or reservoir, and is ignited as it issues from the lower end of this tube, which may be surrounded by glass to protect the flame from the draughts of air. The stream of metallic particles, in falling from the orifice of the funnel or reservoir through the tube, attains such a velocity as to prevent the magnesia produced by the combustion choking the end of the tube.

It is found convenient to mix the metallic powder with sand or similar material to cause it to flow more freely from the orifice, and

to cleanse more perfectly the interior of the tube through which it falls. The intensity of the light may be regulated by employing more or less sand or diluting material.

2793.—EDWARD MELDRUM, of Bathgate, Linlithgow, gentleman, for "Improvements in the distillation of coal and shale, and in the apparatus employed therein." Patent dated Oct. 30, 1865.

This invention relates to a peculiar construction and arrangement of retorts, with a view to the economical distillation of coal and shale. According to this invention it is proposed to adopt a cellular arrangement of retorts, which are constructed by subdividing the longitudinal space between two brick or masonry walls by means of metal diaphragms or partitions placed transversely across the space between the walls, and at suitable intervals according to the required size of each retort. Fire-clay or metal coverings are provided at the top, the whole arrangement forming a series of retorts or cells adjoining each other.

2799.—DAVID BLAIR WHITE, of Newcastle-upon-Tyne, M.D., for "Improvements in ventilators for windows and other like openings." Provisional protection only obtained. Dated Oct. 31, 1865.

This invention consists first in constructing ventilators of an open fabric, one end of which is secured to a spring-roller while the other end is fastened to the window-sash. On opening the sash the ventilator follows it, if already fastened to it; or the ventilator may be pulled up or down, as the case may be, to occupy the space between the sash and the window-frame and be fastened to the sash. When the ventilator is not required it winds upon the spring-roller. The position of the spring-roller may be reversed, that is to say, it may be fitted to the sash.

The invention consists, secondly, in constructing ventilators of an open fabric or material fixed to the upper part of the inner heading of a window-frame, so that it lies in the interstice which exists between the inner heading and the upper sash when this sash is closed. When the upper sash is lowered the ventilator covers the opening formed thereby. The open fabric or material used for these ventilators may have any ornamental device painted or produced thereon so as to give a pleasing appearance thereto.

2804.—ARTHUR DESLANDES, of Manchester, Lancashire, professor of French, for "Certain improvements in the manufacture and production of metallic pipes, tubes, or other similar hollow castings." A communication. Patent dated Oct. 31, 1865.

At the top of a vertical hole or well three moveable cranes are arranged, and at the bottom of the well a curved railway is adapted, on which waggons move in conjunction with the cranes. On these waggons the moulding-boxes containing moulds for a number of pipes are placed, and the moulds or cores are transmitted by the series of cranes from beneath the action of the moulding-ram, by which they are formed, over a current of heated air supplied by tubes beneath the finishing wagon. The moulds are brought by the first crane under the ram or consolidator of the moulding-sand, which has a vertical reciprocating motion, and which rams and hardens the sand in the moulds, and the core may either be formed in the mould simultaneously, or placed therein afterwards. When thus formed the second crane removes the wagon over the current of heated air where they may become dried, and another wagon is placed beneath the action of the ram. After they are dry the third crane passes them into a line of rails to be removed to the casting-room, by which means and process the formation of moulds and cores is rendered very rapid.

2808.—HENRY YOUNG DARRACOTT SCOTT, of Ealing, Middlesex, Lieutenant-Colonel in the Royal Engineers, for "Improvements in the treatment and deodorization of sewage water." Patent dated Oct. 31, 1865.

The object of this invention is to provide a method of getting rid, in a cheap and efficient manner, of the nuisance and danger attendant upon the discharge of sewage matter into rivers, or when used as a manure upon fields. It consists in effecting with lime, which is comparatively a cheap material, that which lime will do as well as metallic salts, and then supplementing its action, with the properties which the far more costly metallic salts—such as soluble salts of iron, manganese, zinc, and copper—possess, of locking up in a harmless form the noxious sulphuretted hydrogen.

The claims are for treating sewage water first with lime, and afterwards with metallic salts, as herein set forth; and, secondly, preparing lime compounds in a solid form, for the purpose of applying such compounds for the treatment and deodorization of sewage water.

2818.—CHARLES HENRY WOOD, of Jewry Chambers, Aldgate, analytical chemist, and EDWARD LOUIS BARRETT, of Thrawl Street, Spitalfields, London, manufacturing chemist, for "An improved mode of purifying gas." Provisional protection only obtained. Dated Nov. 1, 1865.

The object of this invention is to remove the sulphur, or reduce the proportion which at present exists in purified coal gas, by a simple economical process. This is effected by the use of the material known to alkali manufacturers as soda-waste. It is preferred to place the soda-waste, in the state in which it is produced at the soda-works, in a vessel similar in construction to the oxide of iron purifiers now used at gas-works, and to pass the gas through it either before or after the gas has undergone its ordinary purification. But in some cases it is found desirable to boil the soda-waste with water, and to wash the gas with the resulting solution. It is preferred to employ the soda-waste in as fresh a state as possible, because it is found that by long exposure to air it undergoes oxidation, and is then not so efficient in its action.

2833.—JAMES WEBSTER, of Birmingham, Warwickshire, engineer, for "Improvements in generating and applying certain gases, and in apparatus to be employed therein." Patent dated Nov. 2, 1865.

This invention relates, firstly, to the generating of gases by forcing currents of atmospheric air through mineral turpentine, naphthalene, or rock oil, or any other oil or spirit consisting of a similar base; and, secondly, to the apparatus to be used in making and applying such gases.

The apparatus employed consists of a cylinder, the lower part of which is charged with the oil or spirit before named, which is done by pouring it in through a tube into a reservoir, whence it descends into the cylinder by a pipe. Air is forced into the oil or spirit by bellows worked by a treadle, by which the air is driven through the tube and is discharged into the drum or reservoir. To this drum is connected a series of vertical tubes extending from the under side of the drum to the bottom of the cylinder. These tubes are by preference formed alternately of copper and zinc, and have their lower ends immersed in the oil or spirit, the upper ends being fixed in a block of wood or other non-conductor. By the action of the bellows air is forced through the tube into the drum, and thence through the vertical tubes into the oil or spirit, and in its passage absorbs a portion of the oil or spirit, driving it up the outer cylinder in the space around the tubes, into and through the body of the cylinder, and through a mass of sponge or pumice stone, or other filtering medium with which the upper part of the cylinder is charged, whence it issues in the form of gas by a pipe.

When using this apparatus as a blow-pipe, which is one of its most important forms of application, a flexible tube is attached to the pipe, to which is fixed a two-way nozzle-pipe. The gases issuing from the cylinder and through the flexible tube are stopped by a stop-cock, which regulates the supply to the two tubes above it. These two tubes meet again at a junction, whence they are conveyed to the nozzle by two tubes, one within the other. The outer tube is in section about sixteen times the area of the inner one, but the inner one takes about sixteen times more gas than the outer one, the latter being used only to maintain ignition. The gas being lighted in the nozzle, and the bellows worked by the treadle, an excessively strong heat is produced, and can be maintained until the whole of the oil or spirit has been consumed.

2848.—WILLIAM BRETT, of the Gas-Works, Hertford, Hertfordshire, for "An improved truck or barrow for wheeling and tipping coke, coal, or other substances." Patent dated Nov. 4, 1865.

This invention consists of a hollow semi-cylindrical shaped holder, the sides and bottom or periphery of which are made of a number of plates or hoops of iron, between which plates and hoops respectively, both at the sides and bottom, openings of about an inch in width, more or less, are left. The object of these openings is to cause the heated mass of gas coke, furnace cinders, or other hot material, to be acted upon by the external atmosphere, and be more rapidly cooled, thus lessening its injurious effect on the holder. This holder, which forms the body of the truck or barrow, is mounted upon two standards of a cranked axle, the latter being supported on travelling wheels. The cranked axle is fixed to a frame to which a shaft or handle is fitted for moving the whole. The holder can be tipped upon its own axis (which is independent of that of the wheels) while both frame and wheels remain stationary. It can also be turned over bottom upwards, or nearly so, by raising the shaft of the travelling frame.

APPLICATIONS FOR LETTERS PATENT.

1787.—WILLIAM CHESNEY, of Willenhall, in the co. of Stafford, for "Improvements in the manufacture of water and steam cocks or stop-valves; applicable also for other like purposes." July 6, 1866.

1788.—ENOCH HARRISON AYDON, of Wandsworth, in the co. of Surrey, civil engineer, and EDWARD FIELD, of Chandos Chambers, Adelphi, in the city of Westminster, consulting engineer, for "Improvements in drawing or exhausting and forcing fluids, and in instruments or apparatus applicable to such purposes." July 6, 1866.

1827.—WILLIAM GLASSFORD WALKER and ROBERT FRAZER SMITH, both of Kilmarnock, in the co. of Ayr, N.B., for "A certain improved method of producing illuminating gas." July 12, 1866.

1829.—WILLIAM READE, of 4, Clayton Square, Liverpool, in the co. of Lancaster, gentleman, for "Improvements in steam-pumps." A communication. July 12, 1866.

1854.—ALEXANDER ROGER STARK, engineer, and JAMES WOODMAN, commercial agent, both of Woolwich, in the co. of Kent, for "Improvements in the means of fixing the covers of gas-retorts." July 16, 1866.

1866.—WILLIAM EDWARD GEDGE, of the firm of John Gedge and Son, of 11, Wellington Street, Strand, in the co. of Middlesex, patent agent, for "An improved gas-burner." A communication. July 17, 1866.

GRANTS OF PROVISIONAL PROTECTION.

1348.—ALFRED VINCENT NEWTON, of 66, Chancery Lane, in the co. of Middlesex, mechanical draughtsman, for "Improved apparatus for manufacturing illuminating gas." A communication. May 10, 1866.

1787.—WILLIAM CHESNEY, of Willenhall, in the co. of Stafford, for "Improvements in the manufacture of water and steam cocks or stop-valves; applicable also for other like purposes." July 6, 1866.

NOTICES TO PROCEED.

625.—JAMES YOUNG, of Limefield, in the co. of Mid Lothian, N.B., gentleman, for "Improvements in distilling coal, shales, and other substances, and in the apparatus employed therein." March 1, 1866.

669.—THOMAS CLAYTON, of Manchester, for "Improvements in apparatus employed in producing illuminating gas from inflammable and volatile liquids." March 5, 1866.

719.—EDWARD THOMAS HUGHES, of the firm of Hughes and Son, patent agents, 123, Chancery Lane, London, for "Improvements in pumps." A communication. March 9, 1866.

1710.—WILLIAM ROBERT LAKE, of 8, Southampton Buildings, Chancery Lane, in the co. of Middlesex, consulting engineer, for "Improvements in the mode of distilling or separating volatile products from oils and other fluids." A communication. June 27, 1866.

PATENTS WHICH HAVE BECOME VOID

BY REASON OF THE NON-PAYMENT OF THE ADDITIONAL STAMP DUTY OF £50 BEFORE THE EXPIRATION OF THE THIRD YEAR.

1645.—JAMES JOHN SHEDLOCK, "Improvements in wet gas-meters." July 2, 1863.

1706.—JAMES SMITH and SYDNEY ARTHUR CHEASE, "A new description of hydraulic engine for raising water and other fluids above their common level, the fluids so raised to be used as a motive power." July 9, 1863.

1749.—JAMES MORTIMER, "Improvements in the construction and arrangement of dwelling-houses, in combination with the means employed for ventilating the same." July 13, 1863.

1749.—RICHARD ARCHIBALD BROOMAN, "Improvements in apparatus for suspending chandeliers, gaseliers, and other weights." A communication. July 13, 1863.

Parliamentary Intelligence.

HOUSE OF LORDS.

MONDAY, JULY 9.

The IMPERIAL GAS COMPANY (No. 3) Bill was brought from the Commons, read a first time, and referred to the Examiners.

The NEATH NEW GAS Bill was returned from the Commons, with the amendments agreed to.

The NEW RIVER COMPANY Bill was returned from the Commons, agreed to, with amendments; the said amendments were considered, and agreed to.

THURSDAY, JULY 12.

The GASLIGHT AND COKE and CITY OF LONDON GASLIGHT AND COKE COMPANIES Bill was referred to a Select Committee, consisting of Lord Egerton (chairman), the Earl of Huntingdon, Lord Foley, Lord Ravensworth, and Lord Methuen, who will meet on Monday, July 16, at eleven o'clock.

FRIDAY, JULY 13.

Petitions were deposited against the IMPERIAL GAS COMPANY (No. 3) Bill, from the board of guardians of Chelsea; from the Vestry of Chelsea; and from owners, &c., of property in Chelsea.

MONDAY, JULY 16.

The following Bills received the Royal Assent:—The BRIGHTON AND HOVE GENERAL GAS; KILMARNOCK WATER; SHEFFIELD UNITED GAS; UNITED GENERAL GAS COMPANY (DUBLIN); ALDERSHOT GAS AND WATER; ALLIANCE AND DUBLIN CONSUMERS GAS COMPANY; NEATH NEW GAS COMPANY; and the NEW RIVER COMPANY.

The WANDSWORTH AND PUTNEY GAS Bill was read the third time, with the amendments; further amendments made, and the Bill passed, and sent to the Commons.

Petitions were deposited against the IMPERIAL GAS COMPANY (No. 3) Bill, from Earl Cadogan and others; from E. T. Smith; and from T. B. Simpson.

TUESDAY, JULY 17.

The BRIDGE OF ALLAN WATER, and the WALKER AND WALLSEND UNION GAS Bills, were returned from the Commons, with the amendments agreed to.

The SHEFFIELD WATER Bill was read the third time, with the amendments; a further amendment made, and the Bill passed, and sent to the Commons.

The WEARDALE AND SHILDON DISTRICT WATER Bill was reported from the Select Committee, with amendments.

THURSDAY, JULY 19.

GASLIGHT AND COKE and CITY OF LONDON GASLIGHT AND COKE COMPANIES Bill.—The Select Committee reported, that it is not expedient to proceed further with the Bill.

The GREENOCK AND SHAW'S WATER, and the GREENOCK WATER Bills, were reported from the Select Committee, with amendments.

IMPERIAL GAS COMPANY (No. 3) Bill.—The Chairman of Committees informed the House, that the provisions of the Bill were substantially the same as those of the "Imperial Gas Company Bill," passed by this House, with amendments, on the 24th of April last; leave given to proceed with the Bill; the Bill was read a second time accordingly, and committed.

GLASGOW CORPORATION WATER Bill.—A Standing Order was considered (according to order), and dispensed with; and the Bill was committed.

FRIDAY, JULY 20.

The IMPERIAL GAS COMPANY (No. 3) Bill was reported, with amendments.

HOUSE OF COMMONS.

MONDAY, JULY 16.

The BRIDGE OF ALLAN WATER, and the WALKER AND WALLSEND UNION GAS Bills, were agreed to, as amended by the Lords.

THURSDAY, JULY 19.

WATER-WORKS (recommitted) Bill.—Order for committee read, and discharged, and the Bill withdrawn.

FRIDAY, JULY 20.

The WANDSWORTH AND PUTNEY GAS Bill was agreed to, as amended by the Lords.

HOUSE OF LORDS.

(Before Lord EGBERTON, Chairman; the Earl of HUNTINGDON, Lord FOLEY, Lord RAVENSWORTH, and Lord METHUEN.)

GASLIGHT AND COKE AND CITY OF LONDON GASLIGHT AND COKE COMPANIES BILL.

THURSDAY, JULY 19.

Mr. HOPE SCOTT, Q.C., and Mr. RICHARDS appeared for the promoters; Mr. WEBSTER, Q.C., and Mr. SARGOOD for the Corporation of London, petitioners against the bill.

Mr. HOPE SCOTT said this was a bill to authorize the amalgamation of the undertakings of the City of London Gaslight and Coke Company with that of the Gaslight and Coke Company, and for other purposes. Both the companies whose undertakings it was sought to amalgamate were companies which supplied gas in the City of London, and of these, one, the latter of the two named upon the back of the bill, supplied gas in other parts of the metropolis also; in fact, it supplied the Houses of Parliament by its works in the Horseferry Road. The object of the bill was to make the two undertakings into one. Their lordships would find a history of both the companies in the preamble of the bill. The first recital was that an Act was passed in the 50th year of the reign of His Majesty George III., intituled "An Act for granting certain powers and authorities to a company to be incorporated by charter," and he believed that this company, which had since been called "The Chartered Gas Company," was the oldest gas company in London. Their lordships would observe here the form in which, in other days, the question of incorporation was dealt with. Parliament gave power, but the Crown was to incorporate. Then there was a recital in the bill, of the incorporation of the Gaslight and Coke Company by charter, in 1812, by the Crown, but only for a limited term, which had long since expired. Then there were three other Acts of Parliament recited, all of them of the reign of George III., by which the company were incorporated in perpetuity. By an Act of George IV. the several Acts recited were amended, and the powers vested in the gas company were further extended and enlarged. Then there was a recital in the preamble of the capital created and issued by the Chartered Company from the year 1810 to the year 1823 inclusive, showing a total of £900,000, the company having no borrowing powers. The state of their capital on the 30th of June, 1865, was stated, showing that there remained to be called up in respect of the 6000 shares authorized to be raised under the last-mentioned Act the sum of £120,000, and that a sum of £5 per share had since been paid, which reduced the uncalled capital to £90,000. The next recital was that the company had no mortgage or bond debt; and this disposed of the history of the Chartered Company. The other company was the City of London Gaslight and Coke Company, and was incorporated by an Act of the 57th George III., c. 23, which Act was repealed in 1859, and by the last mentioned Act their capital was fixed at £400,000, whereof the sum of £300,000, being the old capital of the company, was divided into 10,000 A shares of £20 each and 10,000 B shares of £10 each, and the company were authorized to raise the additional sum of £100,000 by the creation and issue of 10,000 "new shares" of £10 each, making a total capital of £400,000. Then the preamble recited that by the last-mentioned Act the company were prohibited from paying out of the revenues of the company, as dividend or interest on the B shares, a larger sum than £4000 per annum. The capital represented by the B shares was formed by the expenditure of money out of the profits of former years, which Parliament acknowledged to be a contribution to the structure of the company, but they reduced the ordinary dividend upon it from 10 per cent. and limited it to 4 per cent., a rule very commonly adopted in gas and water bills. The preamble then recited that the company had created and issued 8000 "new shares," which had been fully paid up, leaving £20,000 of the authorized additional capital to be provided by the creation and issue of 2000 "new shares" of £10 each. The company were, by the last-mentioned Act, authorized to borrow £60,000, which power had been fully exercised. The operative part of the preamble was, that "it is expedient that provision should be made for vesting the undertaking of the City Gas Company in that of the Gas Company by amalgamation." As the bill was originally framed power was proposed to be taken to raise additional capital, but that had been given up, and the only money powers which were now contained in the bill were those relating to the raising of money by way of loan. By section 49 of the bill it was provided that the amalgamated company might from time to time borrow on mortgage or bond any sums which, inclusive of the sum of £60,000 already so raised by the City Company, should not exceed in the whole £400,000. From what he had stated, their lordships would observe that the total present share capital of the two companies was £1,300,000, consisting of the £900,000 authorized to be raised by the Chartered Company, and the £400,000 authorized to be raised by the City Company; and the money power now sought was to increase the borrowed capital to £400,000, which was less than the usual proportion allowed of loan to capital, being under one-third of the total amount of the shares. With regard to the absence of borrowing powers in the case of the Chartered Company, he would call the attention of the committee to the last Act passed in their favour. It was as long ago as 1823, and from that time to the present they had not been in Parliament except in 1860, under circumstances to which he would refer presently. At that time a general inquiry took place with regard to the supply of gas to the metropolis, but that inquiry did not involve the question of the special capitals of the various companies. This would account for the fact that the Chartered Company had not been put in the same position as other companies which had come to Parliament of late years, and had obtained borrowing powers. The object of the present bill was a very simple one—it was to unite these two undertakings—and he thought it was now generally admitted in Parliament that amalgamation carried with it so many benefits that it was very desirable, and should be adopted in all cases unless there were strong reasons shown to the contrary. The usual result of amalgamating two undertakings which dealt in the same commodity in the same locality, whether it were carriage or any other matter, was to put an end to competition. This had been decided by Parliament to be the best thing in the case of the gas companies of the metropolis, but the question of competition did not arise here. In the year 1860, a select committee of the House of Commons sat, and inquired, as no doubt their lordships were aware, into the supply of gas to the metropolis, and an Act of Parliament was passed in that year after a very long investigation, by which a district was assigned to each of the companies. A map was prepared and signed by the Secretary of State for the Home Department describing the limits of those districts, and no company might depart from that arrangement of districts to compete with another company without the authority of Parliament.

The CHAIRMAN said the learned counsel was aware that that arrangement had been recently reported against by a select committee of the other House.

Mr. HOPE SCOTT said he was coming to that report immediately. What he had now to say was that the principle of districting had been distinctly adhered to by the parliamentary committee which sat this year on the sub-

ject. But, as he had already remarked, the question of competition did not arise in this case. Parliament had declared that there should be no competition with regard to the supply of gas in the metropolis, but that each company should have a district of its own and be confined to that district, and as a matter of fact this was the law in this country. Now the districts supplied by the companies before the committee were these—the City Company supplied in the City and a small district outside, and the Chartered Company supplied in the City and a larger district beyond, including Westminster. By the proposed amalgamation the companies believed that they would be able to effect a considerable economy in management, and also render more certain and secure the supply of gas to the public. The City Company had but one place of manufacture, which was at Blackfriars; the Chartered Company had three stations, one at Horseferry Road, another at Brick Lane, and a third at Curtain Road, the two latter being in close neighbourhoods at the more northern parts of the metropolis, just outside the City. This year the Chartered Company introduced a bill which, if carried, would have had a most beneficial operation as regarded these works. But that bill had been rejected. The Chartered Company *pari passu* with this amalgamation bill proposed to Parliament to give them power to establish new works at Hackney Wick. The site of those new works was viewed by the members of the committee of the House of Commons; and, notwithstanding the objections which were raised on the ground that such works would interfere with the Victoria Park, they came back perfectly satisfied that those new works would not have any such injurious effects. The bill was afterwards opposed in the House of Commons, but passed there successfully. He was sorry, however, to say that the bill was lost upon the second reading in their lordships House. He mentioned this particularly, because on the part of the gas companies they had had to contend at the present moment with two opposite modes of proceedings. One was founded upon a general desire to remove gas-works out of the metropolis, and the other on an equally earnest desire to prevent their settling down elsewhere, while all the time the companies were held bound to supply a superior article at a moderate price. Supporting their lordships House had not thought fit to reject that bill on the second reading, the present promoters would have been able to state that the immediate result of giving them a new site would be to remove the entire manufactories and works from Brick Lane and Curtain Road, and to a considerable extent the manufactory in Horseferry Road, Westminster; and also to open the prospect, when the two companies were amalgamated, of the works at Blackfriars being also disused for manufacturing purposes. But that argument was no longer open to him, because, as he had stated, the company had been refused the power which alone would have enabled them to make these beneficial changes. But this did not affect the question of amalgamation, which rested on the general consideration of the economy of management which the companies would be able to introduce, independent of the improvements which the other bill would have enabled them to make. One of their lordships had referred to the inquiry which had taken place this year before a select committee of the House of Commons. That committee was appointed under these circumstances:—The corporation of the City of London introduced a bill during the present session to enable them to manufacture and supply gas to the City, and on the 6th of March it was resolved in the House of Commons that the bill be read a second time, and committed to a select committee of twelve members, of whom five shall be nominated by the Committee of Selection; and that the committee be instructed to inquire into the operation and results of the Metropolis Gas Act, 1860. The committee so appointed took evidence, and the first portion of their inquiry was directed to the Act of 1860, and under circumstances of which the gas companies have since complained. They said that they were stopped in giving their evidence, and were not heard to rebut the charges made against them. The committee made this report. (The learned counsel read and commented on the report of the select committee.) He believed that the conclusions the committee reported in reference to the dividends paid by the companies was in error; and, in fact, there were many erroneous statements, and certain charges were brought against the companies which they were not allowed to rebut. But he was not much concerned with these points now, and he only read the report so that the whole matter might be clearly before their lordships. In the last paragraph but one of their report the committee said, "Your committee think that the system of districts should be continued, and, with a view to the economy of administration and the convenience of the consumers and of the public, that every facility should be offered by Parliament for the further extension of the system of regulated monopoly, either in the way of the amalgamation of the several existing companies, or of the disposal of the interests of the several companies in the metropolis to some body or bodies representing the ratepayers of the metropolis, on such terms and conditions as may be agreed upon, and as Parliament may see fit to impose." This passage showed that upon an inquiry into the operation of the Act of 1860, the principle of that Act, with regard to districts was affirmed. The committee declared that it ought to be continued, and that, with a view to the economy of administration and the convenience of the consumers and the public, facilities should be offered by Parliament for the further extension of regulated monopoly. This was the opinion of the committee upon the first part of their inquiry, and they issued their report before any of the bills sent to them had been considered. This report was undoubtedly intended to be, and probably would be the basis of another general Act similar to that of 1860, for regulating the relations of the consumers to the different companies who supplied the several districts of the metropolis. But he thought he might safely say that it would be unwise and unreasonable to proceed to legislate against any particular company upon the basis of this report, which was intended to apply to all the companies irrespective of the private Acts of the companies concerned. Immediately or soon after the issue of this report, the City Corporation Gas Bill was rejected by the select committee. The next bill taken up by them was the bill of the Chartered Company, which they passed, giving the company a site at Hackney Wick; but that bill was, under the circumstances he had named, rejected by the House of Lords.

A LORD: What did the bill promoted by the corporation propose to do?

Mr. HOPE SCOTT said it was a bill to authorize the corporation of the City of London to erect gas-works themselves, and to enter into competition with the existing companies by means of the credit of the public rates and revenues of the City of London, to the necessary destruction of the existing companies.

Mr. WEBSTER: It was to erect gas-works out of London, near the Victoria Docks.

Mr. HOPE SCOTT said that was so, and the immediate effect of the bill, if passed, would have been to vest in the corporation the power to compete against private companies, backed with the revenues of the City of London. That became at once and evidently an unreasonable proposition, and their lordships would see how it had been met here. The committee of the other House suggested alternative plans—either an amalgamation of the several existing companies, or the disposal of the interests of those companies to some body or bodies representing the ratepayers of the metropolis. In some

cases, the most notable of which was that of Manchester, the corporations did supply gas to the public, but in no case had any corporation been authorized to do so until it had acquired the interests of the existing gas companies. There was no such proposal in the bill of the corporation of London this year, and the views of the committee of the House of Commons were best learnt by looking at their report in which they spoke of the conditions of supply. That bill, as he had stated, was rejected, and then came the Chartered Bill, which was carried in the House of Commons, but had since been lost. The amalgamation bill, now before their lordships, was next considered by the committee, and passed by them on the ground that it was a step in the direction indicated by their report, that "every facility should be offered by Parliament for the further extension of regulated monopoly in the way of the amalgamation of the existing companies," and it was quite plain that it was not inconsistent with the other alternative, "the disposal of the interests of the several companies in the metropolis to some body or bodies representing the ratepayers of the metropolis," because it would be as easy for the corporation—not the corporation, because they were not the parties regarded as the local authority in the City, but the Commissioners of Sewers—to take the two amalgamated concerns as to take the two concerns separately, if hereafter it should be considered desirable. So that, at any rate, adopting the committee's report, the promoters of this bill were proceeding in the right direction in one alternative, and were doing nothing thereby to hinder the adoption hereafter of the other alternative. He would now turn to the only petition against the bill, which was that of the corporation of the City of London, who had taken upon themselves the burden of agitating this question, and who found the most convenient form of raising the matter fairly was by promoting their own bill, which was rejected. The petition commenced by telling their lordships that the present bill was pending, and then proceeded to state that "your petitioners are the municipal authority, having the local management of the City of London." Now he (Mr. Hope Scott) called their lordships attention to the fact that the local authority in the City recognized by the report of the select committee of the House of Commons was, not the corporation, but the Commissioners of Sewers. And another point, to which perhaps he had better refer at once, was this: that the corporation nowhere alleged in their petition that they were consumers of gas, and therefore had any immediate interest in this question as such. And thirdly, in regard to their allegation that they were the municipal authority having the local management of the City of London, he submitted that this conferred upon them no right to interfere in the matter of a pure arrangement between two existing gas companies. In their lordships House there was no Standing Order which warranted the corporation being heard upon any such ground. In the other House there was a Standing Order, No. 133, which authorized the corporation of a town or other public authorities to be heard upon questions which affected the communities they represented, if the committee or the referees thought fit. But their lordships had no such Standing Orders, and the Commissioners of Sewers, who were the local authority, did not petition.

The CHAIRMAN said, if he recollects aright the Standing Orders of the House of Lords, it was perfectly in the power of the committee to admit almost everybody.

Mr. HOPE SCOTT: Unquestionably.

The CHAIRMAN: In the House of Commons there are certain authorities limited and defined.

Mr. HOPE SCOTT said all that he simply wished to state was that there was no Standing Order in this House, which gave the corporation a right to be heard. That their lordships had the power to hear any one they pleased, except so far as it was limited by the practice of their lordships House, he was not there to contest. He merely stated that the right to be heard was not given in the Standing Orders of their lordships House which was given in the other House, and he knew that in this House there used to be exclusive rights of being heard which did not exist in the House of Commons. He was merely pointing to the distinction between the two, and was not there to contend that their lordships could not hear the corporation or the Thames Conservancy, or any other body which chose to come forward and oppose the bill. At the same time he should take their lordships opinion whether, in their discretion, they considered this was a question upon which the corporation should be heard, they not alleging themselves to be consumers—not being the Commissioners of Sewers, who were the parties charged with the maintenance of the streets of the City; power over the streets being usually regarded as giving a *locus standi* in the case of a bill which sought to empower a company to break up the streets. The petition of the corporation then proceeded: "That it is recited in the preamble of the said Act that it is expedient that provision should be made for vesting the undertaking of the City of London Gaslight and Coke Company in that of the Gaslight and Coke Company by amalgamation, and that the company formed by that amalgamation should be enabled to raise additional capital. That by the said Act it is sought to enact that the City of London Gaslight and Coke Company shall, immediately after the commencement of the Act, be dissolved, and their undertaking shall thenceforth be amalgamated with and form part of the undertaking of the Gaslight and Coke Company; and the said Act confers various powers with reference to the amalgamation of the two companies. That the aggregate capital of the two companies, as stated in the preamble, is £1,300,000, and by clause 42 of the bill it is sought to add £300,000 more to such capital, making a share capital of £1,600,000." Their lordships would remember that he (Mr. Hope Scott) had already informed them the bill had been altered in this respect, and that the power to raise additional capital was struck out. The petition proceeded to state "That it also sought to authorize the amalgamated company to break up streets within the limits of their supply, without restrictions or limitations." This, as he had already remarked, was a question for the guardians of the district, and he would now add that the promoters of this bill sought for no new powers in this respect—no powers which they did not already possess—but inasmuch as their old Acts were repealed by the bill, they sought herein to incorporate the clauses of the General Act. Section 2 incorporated those clauses, which were usually accorded to all gas companies in London and elsewhere, and so far, therefore, only restored to the companies the powers they had hitherto possessed. Then the corporation alleged "That the said Act very prejudicially affects the rights and interests of your petitioners and of the inhabitants of the City of London." Now, this was the only allegation as to what was in the bill, and no details were given as to how it could possibly affect prejudicially the rights and interests of the petitioners. The real allegation was of matters which were not in the bill; in other words, the corporation took advantage of the bill to raise questions which the bill itself did not raise. They said "That the continuance in the City of London of any of the gas-works of the companies is detrimental to the health and comfort of the inhabitants of the City." This allegation came after the rejection of the other bill promoted by the Chartered Company, by which they sought power to put their works outside the City, and was made the main point of objection to the present bill. "That the price of gas supplied by the companies has been too high,

having regard to the cost of production and other matters which determine the price to the consumer, and it has been deficient in quality and purity, and that provision ought to be inserted in the said Act to limit the price and secure the purity and illuminating power of the gas to be supplied by the amalgamated company." So that there being an existing law—the Act of 1860—which regulated these companies and all other companies in the metropolis, and a committee having sat and considered whether there should be any alteration in that Act, and having made a report to be the foundation of a new Act, the corporation thought their lordships would be disposed to renew the examination by the committee of the House of Commons as to what was the proper price of gas, having reference to the cost of production and other matters; that they were to make special legislation as regarded these companies, leaving all the other companies of the metropolis under the Act of 1860, and that they would make special anticipatory legislation in this particular instance, before any general Act was brought in. He maintained that such a proposition was unreasonable. Then the petition alleged "That the provisions as to raising £300,000 additional capital, and as to distributing the same as proposed, will be prejudicial to the consumer." This provision of the bill was now struck out; and he might observe that there was no allegation in the petition against the raising of money by loan—it was simply against the raising of money by the creation of fresh capital, which, as he had stated, was struck out. On the question of further borrowing powers the petition was silent, and therefore it must be assumed the corporation were content that the companies should take them. The petition proceeded to allege, "That your petitioners submit that the said Gaslight and Coke and City of London Gaslight and Coke Companies Act ought not to be allowed to pass into a law. That the preamble of the said last-mentioned Act is unfounded and incorrect, and cannot be substantiated by evidence. That there are several clauses and provisions in the said Act prejudicially affecting the rights and interests of your petitioners, and no provisions are contained in the said Act for their protection, and for the protection of the inhabitants of the City, and for securing them from the continuance of the existing gas-works within the limits of the City, and for requiring a good, efficient, and cheap supply of gas." The committee would observe that the corporation gave them no information as to their objections to this bill in the way of reasons, except upon two points—viz., that they objected to the continuance of the manufacture of gas within the City; and that, in their opinion, cheaper and better gas ought to be furnished to the citizens. The "cheaper and better gas" part of the question he had already referred to as one pertaining to general legislation affecting all the gas companies of the metropolis, which it would be unfair to the particular gas companies now before their lordships to anticipate, and which might be very inconvenient, in a public point of view, to have settled in an isolated case, and before a general Act was brought in. The other point, with regard to the removal of the works, it was unjust to insist upon until the companies could go elsewhere. To compel them to go elsewhere by refusing them the power to continue where they were, and to expose them to the same opposition which prevailed at the present moment to any site they could acquire elsewhere, was about as curious a piece of justice as he had ever met with. With regard to the actual works concerned there was only one station of these companies which was within the City, and that continued there under very peculiar circumstances. He alluded now to the Blackfriars works of the City Company on the banks of the Thames, near the Temple; the Curtain Road, Brick Lane, and Horseferry Road stations of the Chartered Company not being within the City boundary. On the right hand corner of the map their lordships would see where the latter company proposed, by the bill which had been lost, to place their new works, and with very great respect to the decision of the House of Lords, he (Mr. Hope Scott) thought it was a great pity that that bill did not come before a committee for inquiry. The prayer of the corporation was not that all gas-works should be removed from the metropolis, but that those which existed in the City should be cleared off. They did not care that the other parts of the metropolis were left just as they were, so long as the works in the City were removed. These works were at the extreme edge of the corporation's jurisdiction; they were most favourably situated, being open to the river on one side, and their position was one which had very often been disputed, but had always been affirmed by Parliament. Originally the City Gas Company, which, though not so old as the Chartered, was still a very old company, had only a temporary tenure of this position. The company were incorporated in 1817 for a term of 46 years, which would have expired in 1863, but they came to Parliament in 1859, and obtained a perpetual incorporation with a permanent tenure of this site. It was the subject of much objection at the time; the Commissioners of Sewers, he believed, opposed the bill, and he was certain that the benchers of the Middle Temple did. The matter was very fully gone into, and the members of the committee took considerable interest in the inquiry, the chairman himself visiting the works. The result was that both Houses of Parliament passed the bill, and thus maintained the company permanently in that position. He (Mr. Hope Scott) remembered well the struggle which took place upon that occasion, and how they were told of policemen fainting on their beats by the exhalations from the works. But all those allegations were inquired into and disposed of. And that was not the only time when the company were before Parliament. The plans for the Thames Embankment, and for the construction of the Metropolitan District Railway, affecting as they did the river frontage of the gas company, had been the subject of inquiry by the Legislature, and on each occasion distinct provision had been made for securing to them proper facilities for the conduct of their operations on that site, with full indemnity in the case of the railway for any injury or interference they might sustain in the progress of the work. In the face of these intimations by Parliament that the company should be preserved in the use of that site in perpetuity, the prayer of the petition of the corporation was that the works of the company should be removed without the slightest provision being made, or being within their power to make, for carrying those works elsewhere. The several stations of the Chartered Company were already taxed to the utmost to accomplish the work they had to do, and it had been the hope of the company that they would be able to relieve them by getting the new Hackney Wick site. That they had been refused; the City works were also taxed to the utmost, and they were now in the position of every one praying that they might be sent away, and of no one being willing to receive them. This was the case he had to present on behalf of the bill, and he had now stated the objections which he had to the corporation petition on the point of merits, so far as they could be called merits. But in addition to these, he objected to their right to be heard at all—he was not speaking of their lordships discretion to admit them, but of their abstract right under any Standing Order to be heard—and he contended that the corporation had not by their petition shown any of those ordinary parliamentary grounds which entitled parties to be heard in opposition to a bill. They did not state themselves to be consumers of gas; they did not state themselves to be charged with the control of the streets; and as a public body, they had no more right to interfere, as far as their lordships Standing Orders were concerned, than any other body in the City of London. He very respectfully submitted, therefore, that they were not

entitled to be heard, or, if heard, that it was contrary to public policy to entertain the questions of the purity and price of gas on the occasion of two companies coming forward for the purpose of amalgamation, when the whole of the other companies were hereafter to be subjected to an amendment of the law; and, finally, that with regard to the removal of the works, it was simply absurd to ask that it should be done until another site had been secured to the company.

Mr. WEBSTER said as his learned friend intended to object to the corporation being heard, he would just offer a few remarks upon the subject, and he would say at once that he apprehended if ever there was a case in which their lordships would exercise their discretion and hear the corporation, this was the one. For their lordships were aware that, independently of what his learned friend had stated in his opening speech (and that alone would be sufficient for the purpose), it was a matter of notoriety that the state of things with regard to these gas companies was, he would not say, so discreditable, because Parliament had sanctioned it, but was of such a character that it was most desirable in every respect a remedy should be applied. And were the corporation of the City of London, which had taken upon itself at the suggestion of the House of Commons, or at all events of the Home Department, the burthen of this inquiry, to be told that they had no right to be heard on this occasion?

Mr. HOPE SCOTT said he thought his friend would do well to confine himself to the allegations in his petition.

Mr. WEBSTER said he was doing so, because the object of that petition was to pray their lordships not to pass this bill, but to suspend all legislation for the present on the allegation that this bill, if it passed into law, would be injurious to the rights and interests of the City of London, and would perpetuate the existence of works which were detrimental to the health of the public. In point of fact the corporation came forward to represent to their lordships on these allegations that it was not expedient any further powers should be given to these companies which would interfere with future legislation on the subject of the supply of gas to the citizens of London. His learned friend in his speech assumed that Parliament had, on various occasions affirmed the principle that the City Company's works should be continued at Blackfriars.

Mr. HOPE SCOTT said, with very great submission to their lordships and his learned friend, he must state that the rule in Parliament was that parties were only to be heard on allegations in their petition. His learned friend must establish his *locus standi* before going into the allegations of his petition, whereas he was now assuming a right he did not possess, to comment upon his (Mr. Hope Scott's) speech.

Mr. WEBSTER replied that when his petition alleged the passing of this bill would be prejudicial to the interests of the corporation and detrimental to the health of the citizens, he thought he was not much out of order in referring to the facts which his learned friend had opened in his speech. He prayed those facts in aid to support the allegations of the petition, and he asked were their lordships prepared to say that the corporation of the City of London, occupying the position they did, not entitled to be heard upon those allegations? His learned friend feeling the force of this, had insisted upon a technical objection—viz., that the Commissioners of Sewers, who, and not the corporation, were the local authority charged with the management of the streets, had not petitioned against the bill. But their lordships should know that the Commissioners of Sewers were only a section of the corporation, and he believed he was right in stating—he spoke in the presence of the remembrancer, who would correct him if he was wrong—that every member of the commission was a member of the corporation. And he again asked whether the corporation should not be heard upon these allegations, dealing as they did with facts which were notorious to every one—viz., the public inconvenience of the present state of things. It was not alleged in point of form in the petition that the corporation were consumers of gas, but it was perfectly certain that they were; indeed he should have thought it was a matter of such notoriety that it was not necessary to insert it. But on the first page of the petition it was said that by the present bill authority was sought by the amalgamated company to break up the streets within the limits of the City. His learned friend stated that the promoters sought for no new powers; true, but they asked for an alteration of the existing state of things. There were now two companies, one entirely confined to the City and the other extending beyond, and it was sought by the bill so to bring those two companies together as would necessarily and materially interfere with future legislation. He believed he was not out of order in referring to what his learned friend had stated, that in the report of the select committee of the House of Commons it was recommended that in connexion with the future gas supply of the metropolis the Metropolitan Board of Works should be the local authority outside the City and the Commissioners of Sewers within the City. In this state of things, and in connexion with the general allegation of the inconvenience and prejudice which the passing of this bill would be to the City, he submitted that it would be to interpose a barrier in the way of general legislation if these two companies supplying districts within and without the City were amalgamated. With reference to the allegation respecting the quality and price of gas, it was quite in their lordships' discretion to decide how far they would go in connexion with the present inquiry. He did not himself propose to go into it to any great extent, but he must insist upon his right to deal with it if necessary. He should ask the committee, with the prospect of general legislation on the metropolis gas supply next session, and in the face of the allegation in the petition that the preamble of this bill was incorrect, and that if passed it would be an inconvenience to the petitioners, not to proceed with this inquiry, which might prejudice the future course of events. It was quite clear there must be fresh legislation on this question, and that whenever that was undertaken the corporation must bear an important part in it so far as the City was concerned. They therefore prayed to be heard to say that it was inexpedient anything should now be done which might prejudice the future legislation that must take place.

Mr. HOPE SCOTT, in reply to the statements of his learned friend, had but few observations to make. He must, however, refer to one point on merits which had been touched upon. His learned friend urged that if the committee sanctioned this amalgamation, they would raise a difficulty in the way of the alternative plan recommended by the select committee of the House of Commons, that the works of the various companies should be transferred to some public body. And the ground of this statement was that one of the companies supplied gas wholly within the City, while the other supplied also a district beyond. In reply, he would remind their lordships that the same difficulty would arise if these companies were not amalgamated, because the same operation must be performed upon one company—the Chartered—and the same process of division must take place in their individual case at the City boundary, if ever separate public authorities were to deal with the supply of gas to the public inside and outside the jurisdiction of the corporation. His learned friend contended that with reference to their right to be heard, the corporation were the *major* which contained the *minus*; that they appointed the Commissioners of Sewers, and that if the latter had a

right to be heard, so had the former. But the commissioners when once appointed by, were independent of the corporation. The corporation was a body in which many interests were involved, and was likely to be affected by popular clamour upon questions which the commissioners in the exercise of their more sober judgments would not be moved by. There were often differences of opinion between the Commissioners of Sewers and the corporation; and whenever the former had seen it necessary to appear in opposition to a bill they had always done so. His friend, therefore, was technically wrong on the point; these bodies were distinct in their practice, and, as a matter of fact, they often differed. Whenever the commissioners saw that an evil was likely to arise from a proposed measure, they came before Parliament; but they had not done so in this case. Moreover, they were also regarded by the House of Commons committee the parties to exercise authority over the gas companies with respect to those matters of purity and price referred to in their report; a clear admission that they and not the corporation were the proper parties to be heard against this bill. Then with regard to the question of consumption, his friend said it was notorious that the corporation burned gas. He (Mr. Hope Scott) thought the presumption was that they did, but the practice of Parliament required that this should be stated in their petition, and if it was so evident a matter it was in their power to put it in, but they had not done it.

The room was then cleared, and the committee deliberated for a few minutes. On the parties being called in again,

The CHAIRMAN (addressing Mr. Webster) said the committee are of opinion that you have a *locus standi*.

John Orwell Phillips, Esq., examined by Mr. RICHARDS.

I am the secretary of the Chartered Gas Company. The statements in the preamble of the bill in reference to the capital of that company are correct. Their capital is £900,000, of which £80,000 remains uncalled—viz., £15 per share upon 6000 shares. We have no borrowing powers in our existing Acts. Our works are situated at the Horseferry Road, at Brick Lane, and at Curtain Road in the parish of Shoreditch. They are all of them outside the City of London. We light a portion of the City, and have a district of considerably larger extent beyond it. The capital of the City Gas Company is correctly stated in the preamble as £400,000, of which £300,000 is divided into 10,000 A shares of £20 each, and 10,000 B shares of £10 each; and by their last Act they were authorized to raise the additional sum of £100,000 by the creation and issue of 10,000 "new shares of £10 each." By that Act they are prohibited from paying out of the revenues of the company, as dividend or interest upon the B shares, a larger sum than £4000 per annum. They have a borrowing power to the extent of £60,000, which has been fully exercised. Their works are situated at Blackfriars, between the bridge and the Temple. Those are the only works they have. They light a small district outside the City, in the neighbourhood of Clerkenwell. We seek by this bill to amalgamate the two companies, by which we anticipate we shall effect an economy in the conduct of the business. There is a provision in the bill for reducing the number of directors as vacancies occur, and when the two concerns are brought together we can reduce the staff. Whatever tends to economy in the manufacture of gas will tend to a reduction of price. We had a bill in Parliament this session for erecting new works at a distance from the metropolis. That bill was rejected. By the amalgamation I believe it is unquestionable that we shall be able to give a better supply to the City. The City works are at times hardly pressed during the dark days of winter, and our works would enable us to give them assistance. We are now completing the second of two large gasholders at Westminster, and they will be both in action before next winter, by which we should be able to afford great assistance to the City works. The companies manufacture canal as well as common coal gas. We had intended to remove the Brick Lane and Curtain Road stations, but that at present is impossible. The demand for gas continues largely to increase, and we are bound to provide for that increase under heavy penalties. By the amalgamation we shall be able to supply it better and cheaper. If the City Commission of Sewers were to deal with the Chartered Company they could only deal with that portion of their concern which is in the City. The amalgamation would rather simplify the matter, as they would then have only one company to deal with.

By the CHAIRMAN: The present price of canal gas is 5s. 6d., and common gas 4s. per 1000. The maximum fixed by the Metropolis Gas Act is 5s. 6d. for common, and 7s. 6d. for canal gas.

Cross-examined by Mr. WEBSTER: The directors of the two companies are different, and the officers are different. So far as the directors are concerned, if this bill should pass we should not have a smaller number at the outset, because it is proposed, as the number of the City Company's directors is very small—only five—we should take them over, but as vacancies occur they would not be filled up. There are twelve directors of the Chartered Company. Taking the whole area of the two undertakings, the comparative size of the Chartered is as two to one of the City Company. The rental and profits of the Chartered Company are about double those of the City Company.

Mr. WEBSTER: Do you really mean to tell their lordships that in that state of things— You assume that if the corporation is to take the gas supply, they will take the whole of the City?

Witness: I should think so.

Mr. WEBSTER: And that the Metropolitan Board of Works would take the outside, if there is to be a division?

Witness: I am not prepared to say that that is the best division.

Mr. WEBSTER: Do you know of any better?

Witness: Except the amalgamation of the companies.

Mr. WEBSTER: Do you mean to say this amalgamation would facilitate the arrangement?

Witness: Yes, because they would only have one company to deal with.

Mr. WEBSTER: Do you think the saving in management would be considerable?

Witness: I do. In the first place, there would be one board instead of two, and one set of officers instead of two. With reference to the carbonizing, the City Company are rather hard pressed in winter, because they have only a small amount of storage room; they are obliged, therefore, to make a large quantity of gas on dark days—to light up many retorts, which they are obliged afterwards to let out again. If they had the means of storage in our large gasholders, it stands to reason they might work more economically.

Mr. WEBSTER: I suppose you would have no objection to a reduction of price corresponding to the saving?

Witness: That would come.

Mr. WEBSTER: You would have no objection to clauses in this bill to make the reduction in price?

Witness: I do not think it is necessary.

Mr. WEBSTER: But if it should turn out to be necessary you would not object?

Witness: I should object to any specific clauses being inserted in the bill, because there is already sufficient power under the General Act.

Mr. WEBSTER: You do not propose to raise any fresh capital, because you do not propose any new works, but you take borrowing powers.

Mr. HOPE SCOTT: That is not in your petition.

Mr. WEBSTER: You do not contemplate any additional works?

Witness: We should find it necessary to lay a large main between the Westminster station and the City works.

Mr. WEBSTER: But you do not propose the erection of works upon any new site whatever?

Witness: No.

Mr. WEBSTER: Only an extension of the works upon the present site, and there is £90,000 of the Chartered Company's capital and £20,000 of the City Company's capital available for that purpose?

Witness: Yes.

Re-examined by Mr. RICHARDS: There is a subway in course of construction in the Thames Embankment. If our connecting-main were laid through that, there would be no necessity for breaking up the streets. The City Company, making more gas than they can store, would be able to put it into our gasholders. It is necessary that the storage power of gas-works should be in a certain relation to their manufacturing power, in order to effect economical working. We might, under the circumstances, be able to make the whole of the canal gas at one station and the whole of the common coal gas at another, which would be a very convenient arrangement. I object to the introduction of any clauses as to price in this bill.

Mr. RICHARDS: Allow me to call attention to clause 59 of the bill—"Nothing in this Act contained shall exempt the company or their gas-works from the provisions of any present or future general Act relating to gas companies or gas-works established before the passing thereof, or from any present or future general Act relating to the public health." That saves the operation of any future legislation. Of course, if legislation takes place next year, as seems to be anticipated, your amalgamated company would be liable to it as well as any other company?

Witness: Of course they would.

Mr. RICHARDS: Your bill incorporates the Gas-Works Clauses Act, under the operation of which the price of gas has been reduced to 4s.?

Witness: Yes.

Re-examination continued: In the 28th section of the bill there is a provision for the gradual reduction of the number of directors down to nine. There would also be a saving by the amalgamation in the matter of engineers, inspectors, collectors, &c.

R. J. Millar, Esq., examined by Mr. RICHARDS.

I am the secretary of the City Gas Company, and have been so for 12 years. I have been in the service of the company nearly 50 years. The recitals in the preamble of the bill as to the capital of that company are correct. The capital by their last Act was fixed at £400,000, of which £300,000, being the old capital of the company, was divided into 10,000 A shares of £20 each, and 10,000 B shares of £10 each, and the company were authorized to raise the additional sum of £100,000 by the creation and issue of 10,000 "new shares" of £10 each. The company have created and issued 8000 "new shares," which have been fully paid up, leaving £20,000 of the authorized additional capital to be provided for by the creation and issue of 2000 new shares of £10 each. The company have exercised their borrowing powers to the full extent—viz., £60,000.

Cross-examined by Mr. WEBSTER: The engineer will tell you the proportion which the works of the two companies bear to each other. We do not contemplate the erection of any works at Blackfriars.

E. J. Evans, Esq., examined by Mr. RICHARDS.

I am the engineer of the Chartered Company, and have been so for some years. I have had very large experience as a gas engineer. I have been engaged as a gas engineer all my life, and have frequently been consulted as such. The proportion which the production and rental of our company bears to that of the City Company is rather less than two to one. We make about 1500 million cubic feet of gas at Westminster, and the City Company make about 600 millions annually. I think it would be advantageous to the public as well as to the companies that the amalgamation should take place. It would enable us to assist the City Company with our large gasholders. The City Company have more retorts than they use in the winter time, so that they could fill our gasholders. In order to do so some additional works will be required. We propose to lay down some additional mains to connect the Curtain Road, Brick Lane, and Horseferry Road stations with the City Company's station. These will be quite independent of the distributing mains. We are now erecting additional gasholders at the Horseferry Road station. The demand for gas increases year by year from 5 to 10 per cent. Renewals and extensions of mains, therefore, come upon us to a considerable extent yearly, necessitating constant outlay. The number of retorts at the City works is out of proportion to their storage. We originally intended, if we got the Hackney Wick site, to remove the Curtain Road and Brick Lane works; as it is, we must remain where we are at present, and if any enlargement becomes necessary, it must take place at Westminster, as the other two stations are nearly full. If we had obtained the new site we should have confined the Westminster station to the manufacture of canal gas, and taken the whole of the common gas down to Hackney Wick, from whence it would have been brought up to the City by a leading main. This bill was before Parliament contemporaneously with that for authorizing the acquisition of the Hackney site. I think the loss of that bill renders the necessity for the amalgamation greater than before, in order to enable us to provide for the efficient supply of the City of London and the outside district until we have time to get works elsewhere. By the amalgamation I believe we shall be able to give a better supply and a cheaper to the public, as there will be economy in every detail of the manufacture.

By the COMMITTEE: We have no works at present at Hackney Wick.

Cross-examined by Mr. WEBSTER: These two bills proceeded to a certain extent together, and the bill for the site was lost in this House. If we had obtained the site mentioned in the bill, the manufacture of common gas would have ceased at Horseferry Road and Blackfriars, and at Brick Lane and Curtain Road. We do not now propose to extend our works at the Horseferry Road, nor do I think we shall make more gas there.

Mr. RICHARDS: I put it to my learned friend whether, in this cross-examination, he is not travelling beyond his petition. There is nothing in the petition about increasing the works. We do not propose to lay a single brick in the City of London.

The CHAIRMAN: But you are going a good deal beyond your amalgamation. You are raising money for other purposes, and, of course, the object for which the money is to be raised is a matter of inquiry.

Mr. RICHARDS: I would say, with great respect, the allegation of the corporation—that if this bill is carried it will be prejudicial to the health of the City of London—is answered at once, when it is proved that there is not a single additional retort to be erected in the City. The witness has shown that if there be any increase at all it will be at Westminster, so that the citizens will get their gas supplied more efficiently without any increase in the works in their locality.

The CHAIRMAN: There are to be new works in the way of mains.

Mr. WEBSTER: I do not know whether your lordships observed it, but in the preamble of the bill there is not one word about raising additional capital.

Mr. RICHARDS: It says that we have no power to borrow.

Cross-examination continued: We propose to supplement the production of the City works by gas from the Horseferry Road if this bill passes. We shall connect all our stations together, so that practically it will be but one manufactory of gas.

Mr. WEBSTER: I suppose there is no question that a new site must be acquired, and that you must go out of the City?

Witness: Yes, but there is some difficulty in getting a site.

Mr. WEBSTER: Was there any difficulty, or would there be any difficulty in getting a site for the whole of the metropolitan gas-works at Victoria Docks?

Witness: I do not know.

Mr. WEBSTER: You were present on the inquiry as to the City (Corporation) Bill—was there any objection to that site?

Witness: There was more objection to that site than to our site.

The CHAIRMAN: We do not want to go into the question of site.

Mr. WEBSTER: Your total manufactory is about 1500 million cubic feet per annum. How much gas does the Chartered Company supply outside the City?

Witness: I think it is about 1100 millions outside, and about 400 millions inside the City.

Mr. WEBSTER: I think in the committee of the House of Commons you were required to make extensions of mains out of profits?

Witness: I think not. All extensions of mains we should charge to capital.

Mr. WEBSTER: What will be the saving, in your opinion, by the amalgamation, under the different heads?

Witness: I can hardly say what it will be; it is one of those things which speak for themselves.

Mr. WEBSTER: The saving will be considerable?

Witness: No doubt there will be a saving; I do not know whether it will be very considerable, but it will enable us to supply the public better.

Mr. RICHARDS: My lords, there is another engineer present—Mr. Mann, the engineer of the City Company—but I do not think myself, after the evidence of Mr. Evans, who is a very distinguished man as a gas engineer, that it will be necessary to detain your lordships by calling any additional witnesses.

Mr. WEBSTER said it was now his duty to address their lordships in opposition to the preamble of this bill, and he trusted that when he had done so their lordships would feel that, under existing circumstances, and in the position in which matters now stood, it was not expedient to proceed further in the matter. The history of the whole proceedings was distinctly before their lordships. The subject of the gas supply of the metropolis was one which had had the anxious consideration of Parliament and of individuals ever since the passing of the Metropolitan Gas Act, 1860, and it was perfectly apparent and obvious from the tenor of the report of the select committee which had been put in by his learned friend that some material change must be made in the next session. His learned friend, in addressing their lordships, relied specifically upon this paragraph:—"Your committee think that the system of districts should be continued, and, with a view to the economy of administration, and the convenience of the consumers and of the public, that every facility should be offered by Parliament for the further extension of the system of regulated monopoly, either in the way of the amalgamation of the several existing companies, or of the disposal of the interests of the several companies in the metropolis to some body or bodies representing the ratepayers of the metropolis, on such terms and conditions as may be agreed upon, and as Parliament may see fit to impose." Now did any one of their lordships, when his learned friend read that paragraph, believe that it in any way supported the object of the bill before the committee? The amalgamation of the several existing companies into one large company, or the disposal of the interests of the several metropolitan companies to a body representing the ratepayers, was a very different question, and the mode of carrying out that suggestion would be that which was intimated in a preceding paragraph of the report, viz., that the Metropolitan Board of Works be the local authority outside the City, and the Commissioners of Sewers within the City. That report recommended a state of things in which there would be one body without the City and one body within. Whether it should be a company without or the Metropolitan Board without, or a company within or the City authorities within, was not now the question, or whether there should be one body for the whole of the metropolis both inside and outside the City; but he thought no one of their lordships would read that report as recommending such an amalgamation as was now proposed by this bill by two of the existing companies. It seemed to him that this proposition was wholly foreign to the principle of the report, and that the amalgamation of these two companies would, notwithstanding what Mr. Phillips had said, interpose a difficulty in the way of carrying out the recommendations of the committee. So long as the committee of the House of Commons had the site bill before them, the question was in a totally different position, because by taking, as the last witness had said it was the intention of the companies to do, the whole of the manufacturing works out of the City, save for the manufacture of canal gas, and probably for the storage of gas, the City and the metropolis would have been relieved of the works at Curtain Road, and Brick Lane, and Blackfriars, all of which works were in situations extremely inconvenient, looking to the crowded states of the several neighbourhoods. It would be superfluous to occupy their lordships time by calling attention to the inconvenience of having such works in very populous districts. With a new site, the acquisition of which would have relieved the metropolis of these gas-works, there would have been a great public advantage no doubt in the amalgamation; but now that the site bill was lost and nothing could be done in that matter till next session, it being obvious that an application would then be made to the Legislature for an extended scheme with a wholly unobjectionable site down the river, it was not desirable to carry the present bill. The committee had now got before them a very partial measure, and one which he thought they would consider it was not expedient to proceed with as it stood. What was that measure? It was reduced simply to this—a proposal to amalgamate the two companies. What was the position of those two companies? One was confined exclusively in its operations to the City, the other supplied a larger district without in the proportion of 7 to 3. It was said by one of the witnesses that the effect of the amalgamation would be a great economy of management. But economy was not the question just now. The question was whether their lordships would sanction an amalgamation which would have an effect upon future legislation, because, although what one of the witnesses said about the difficulty of having to deal with more than one company could not be denied, could their lordships suppose that the dealing with two small companies in

the City would not be much more easy than dealing with an amalgamated company which extended outside the City? That which the report shadowed forth was that there should be a local authority in the City and a local authority outside the City, and if that were to be so would not the passing of this bill oppose an obstacle to such an arrangement? His learned friend could not have it both ways. He had read the report of the committee in aid of his measure, but he (Mr. Webster) submitted that the amalgamation of these two companies was not the kind of amalgamation to carry out the spirit of its recommendation. That was a recommendation of an amalgamation of all the companies inside and outside the City. Could it be contended for a moment that a new state of things being now introduced whereby an outside and an inside district was combined together in one, would not interfere with a general measure for the amalgamation of the whole of the companies. He maintained that this was an objection to the preamble of the bill; that it was in itself an imperfect measure; that it was continuing, and cementing, and consolidating a state of things which their lordships would be glad to see removed. The last witness told them that, if the site bill had been obtained, all the works would have been removed out of the City; but that bill being lost, if the amalgamation took place, all the works throughout would be connected and form one establishment. The witness told them that it would be productive of great economy, and the case for the bill was that it would be so. But would it not be an objection to disturb this state of things, if next session an application was made to Parliament to limit the manufacture and supply of gas to one body in the City and to one body without the City? He (Mr. Webster) prayed their lordships to consider whether his learned friend's own argument was not fatal to the bill. He told them that new works ought to be had. In the face of that would their lordships facilitate and promote a state of things by this amalgamation whereby the existing pernicious state of things would be consolidated, and whereby the companies would have power to work together as one large establishment the stations in the Horseshay Road and Blackfriars, Curtain Road and Brick Lane? That, he said respectfully, would be a retrograde piece of legislation; it was a piece of legislation against the feelings of almost every individual, and as such he was sure their lordships would never sanction it except on the ground of great public expediency. And what was the expediency in this case? It was said that it would effect a saving to the companies; but the amount of that saving the last witness would not condescend upon. It was all very well for Mr. Phillips to say the engineer would inform the committee more particularly on that point; but when the engineer himself was asked, he admitted that there would be a saving, although he did not think it would be a very considerable one. On the ground, therefore, that no such expediency had been proved for the amalgamation, and that the passing of this bill would be obstructive of future legislation, he (Mr. Webster) prayed their lordships not to proceed with the measure this session. It was a partial and imperfect measure; it was in spirit against the recommendations of the select committee's report, and, if carried, it would perpetuate a state of things which their lordships, he was sure, would be glad to see removed. On these grounds he asked them to postpone it till next session, and until the question of site could be settled, and then they would not be putting an obstruction in the way of the general legislation which must take place at that period. Under all the circumstances, he trusted their lordships would be of opinion that the bill should not be proceeded with in the present session.

The room was then cleared for about ten minutes. On the readmission of the parties.

The CHAIRMAN said: I am desired by the committee to inform counsel that the committee do not consider it expedient to proceed any further with this bill.

The bill was therefore lost.

Legal Intelligence.

VICE-CHANCELLOR'S COURT.

TUESDAY, JULY 17.

(Before Vice-Chancellor STUART.)

THE IMPERIAL GASLIGHT AND COKE COMPANY v. THE WEST LONDON JUNCTION GASLIGHT COMPANY, LIMITED, AND THE GREAT WESTERN RAILWAY COMPANY AND THEIR SECRETARIES.

Mr. BACON, Q.C., and Mr. W. H. G. BAGSHAW, were for the plaintiffs; Mr. MALINS, Q.C., and Mr. W. P. DICKENS, for the first-named defendants; and Mr. OSBORNE, Q.C., and Mr. T. STEVENS, for the railway company.

Mr. BACON, in opening the case for the plaintiffs, said the bill was filed by the Imperial Gaslight and Coke Company against the West London Junction Gas Company, Limited, and their secretary, Mr. Platt, and the Great Western Railway Company, and Mr. Saunders, their secretary. The object of it was that the West London Junction Gas Company might be restrained from supplying gas for sale to the Great Western Railway Company, or any other person within the limits in which the plaintiffs had the exclusive right to supply gas under the Metropolitan Gas Act, and for an account of profits; and that the Great Western Railway Company might be restrained from receiving that supply. The purport of the Act of 1860 was to assign certain particular districts to the several gas companies mentioned in the preamble, and restrain them from going beyond their limits for public purposes, in order that there might not be a conflict between gas companies in the same parish or the same district. The Act recited the existence of certain companies, of which the plaintiffs were one, and that the companies, instead of supplying gas by several mains in the same district, had agreed as far as possible to confine their supply to separate districts, in order to economize capital and avoid the too frequent opening of the streets. The 6th clause said—"The limits of each of the said companies shall be the respective districts supplied with gas by such companies as the same are defined upon four duplicate maps, signed by the Rt. Hon. Thomas Henry Sutton Sotherton Esq., and which maps have been severally deposited with the respective clerks of the peace." Power was given to the proper authorities to alter those limits if it should be necessary, which power had not been exercised. The 54th section provided that "Nothing in this Act contained shall avoid, prejudice, or impair any of the powers now exercised by or vested in the Metropolitan Board of Works, or in the Commissioners of Sewers of the City of London and the liberties thereof, or any powers now vested in any local authority within the metropolis, or any powers now exercised or possessed in respect of the manufacture or supply of gas within the metropolis by any railway company, or by any other person or persons making or supplying gas for his or their own use, and not making or supplying gas to the public as a trade or business." First of all there was in the Act a prohibition against selling gas within the particular limits, and the 54th section, which might be said to qualify that

in some degree, contained an exception in favour of any person making or supplying gas for his own use, and not making or supplying it to the public as a trade or business. If the Great Western Railway Company could bring themselves within that exception, probably they might do what they claimed to be entitled to do. In the 4th paragraph of the bill the plaintiffs stated that the district within which they were entitled to the exclusive right of supply included the Paddington terminus of the Great Western Railway Company, and the neighbouring terminus or station at Bishop's Road of the Metropolitan Railway Company, and included the Great Western Hotel near the Paddington station, which belonged to the Great Western Railway Company.

The VICE-CHANCELLOR: I gather from the answer of the defendants that they were in existence at the time the Act passed, and were carrying on the same sort of business they do now, and that they are not general suppliers of the public with gas, but their business is confined to the Great Western Railway Company and the Great Western Hotel.

Mr. BACON: The West London Junction Gas Company, Limited, was a company formed for the purpose of supplying gas in the ordinary way of trade and profit. They chose to consider the Great Western Hotel and the Great Western Railway Company as one, but they were totally distinct. The Great Western Railway Company were merely the lessors of the Great Western Hotel Company. No doubt the West London Junction Gas Company, Limited, appeared to have been in existence at the time the Act of Parliament was passed, but that Act of Parliament intended to restrain all companies then in existence as well as all companies who should thereafter come into existence; and the fact that the defendants supplied only one customer could not affect the case in the slightest degree. They were a company established for the manufacture and sale of gas for profit, and although they said in their answer that their profits had been small, it was clear they had made some profit. But if they had made no profit at all, being a commercial company established for the purpose of making and selling gas for profit, it brought them as distinctly within the prohibition of the Statute as if they had made £10,000 of profit. The object of the Act of Parliament was not for the protection of the interests of companies, but for the protection of the public, that streets might not be opened, and that a variety of other things might not happen which would occur if there was an uncontrolled rivalry between gas companies. The Legislature had, therefore, thought fit to assign particular limits to particular companies, and prohibited the rest of the world from entering within those limits.

The VICE-CHANCELLOR: I should say from the language and scope of the Act, the real purpose of it was to settle the question between those particular companies who are recited; that is to say, to prevent each trenching upon the other. As subsidiary to that, you want to prevent other people from trenching. The Act says that the several companies named have agreed, as far as possible, each one to confine itself to a separate district.

Mr. BACON: That was one fact among many recited in the preamble. It was undisputed that the district in which the defendants, the gas company, supplied the Great Western Railway Company, was that which by law belonged to the plaintiffs. The Act of Parliament would be useless if the court sanctioned the making of gas in the way in which the defendants were doing it, because there might be 500 such. The opening of the streets and all the other inconveniences might be as great or greater than was the case when the Act was passed. The defendants said they supplied gas at a less price than was charged by the plaintiffs, but that could not in the slightest degree influence the judgment of the court, and he asked that the rights which the Act of Parliament had conferred upon the plaintiffs might not be abridged or injured. The railway company were the owners of the land upon which the gas-works stood at Wormwood Scrubs, and they desired, no doubt, to promote the manufacture of gas there. They made terms, in the first instance, with a Mr. Vaughan and a Mr. Vavasseur, who were persons engaged in gas manufacture. They agreed to make leases to them, and so on, taking securities upon the works for the repayment of the money which they advanced. But that was no making of gas by the railway company, but directly the contrary. It was said they only supplied the Great Western Railway Company; but, if they were at liberty to supply the Great Western Railway Company, what was there to prevent them supplying any other company, or house, or establishment, they might think fit, within the same limits?

The VICE-CHANCELLOR: When they begin to do that you will have some other case.

Mr. BACON denied that they could supply to the railway company, and that was the question submitted to the court upon the record.

The VICE-CHANCELLOR: At the time of the passing of the Act the defendants company was known to be a small company connected with the Great Western Railway Company.

Mr. BACON: Nevertheless they were prohibited, because the Act said that no company or person should make gas within the limits for profit.

The VICE-CHANCELLOR: From the evidence taken before the committee, it appears that this "little company" was known to be in existence at the time of the passing of the Act, and were supplying the railway company.

Mr. BACON was not seeking to interfere with any power possessed in respect of the supply of gas within the metropolis by any railway company for the railway company, or with any person making gas for his own use, but it was strictly prohibited that any one should make and supply gas to the public as a trade or business. That the trade was confined to one customer did not make it any less a trade or business. The Articles of Association showed that it was a trading company, and, by the obligations assumed when they came to be registered and incorporated, there could be no doubt in the world that they were making and supplying gas within the limits prohibited, with a view to profit. The question was one very much upon the construction of the Act of Parliament, and that construction would be greatly assisted by looking at the true facts of the case. If it should be assumed that the railway company could make their own gas and supply themselves, that was not the question before the court even as regarded the railway company, but as to the hotel company it was still clearer. Whatever construction might be put upon the 54th section, it was clear that by that no protection was given to anybody to supply the Great Western Hotel, which the defendants insisted they had a right to do. To that extent, at all events, he had a title to the relief which was asked by the bill, although he did not confine his relief to the hotel, but he claimed for the plaintiffs that protection which the Legislature had given them, and asked an injunction against both the defendant companies.

Mr. BAGSHAW followed on the same side, and said there were three things which the suit was instituted to restrain—first of all, the supply of gas by the West London Gas Company to the Great Western Railway Company; secondly, the supply of gas to the Metropolitan Railway Company; and thirdly, the supply of gas to the hotel company, whether that supply was direct from the West London works or by way of resale from the

Great Western Railway Company to the hotel company. Although the latter supply had not yet taken place, it was clearly stated that the defendants intended to do so. It was stated in both the answers that from the 3rd of September, 1861, down to the 4th of January, 1862, the Great Western Railway Company did enter upon the works at Wormwood Scrubs and themselves manufacture gas, but on the 4th of January, 1862, the Great Western Railway Company ceased to manufacture gas, and the West London Junction Company, Limited, were themselves the sole manufacturers. That the defendants were carrying on a trade or business was proved by their own admission that their profit had not been large though they were making profit, and expected to make further profit. The attention of the plaintiffs was first called to the proceedings of the defendants by a notice of what took place at a meeting in September, 1863, where it was stated that the supply of gas to the new hotel and the underground railway would increase the income of the company 30 per cent., and of course, *pro tanto*, diminish the profit which the Act of Parliament secured to the plaintiffs. There was no trace in the Act of Parliament of 1860 of any intention to permit any company or person other than those mentioned in the Act, from supplying gas within the allotted district; and all that it was necessary to prove was, that it was a supply of gas for sale, and therefore to a single individual made it a supply of gas for sale, and therefore it was clear that the defendants were infringing the rights of the plaintiffs, and that they were entitled to the relief which they asked by the bill.

The VICE-CHANCELLOR (without hearing the counsel for the defendants) then delivered the following judgment:—The case of the plaintiffs totally fails. The question turns upon the construction of the Act of Parliament applied to the undisputed facts, as to the nature of the business which the defendants, the gas company, are carrying on. The purport of the Act of Parliament is certainly extraordinary, and according to the language of the recital the purpose was to prevent any one of the companies whose names are mentioned in the recital from encroaching upon the district that should be allotted to the others, and also to prevent the frequent breaking up of the streets for the purpose of laying pipes. But there is nothing recited at all in the Act as to the intention of the Legislature to interfere with the right of the public to be supplied with gas by anybody that could supply it best and in the cheapest way. In the body of the Act it is beyond a doubt that the enactments go greatly beyond the recital, for the 6th section—which is relied upon very properly by the plaintiffs, goes to restrain any persons whatever from manufacturing or selling gas within the limits of the districts mentioned in the Act, except those particular favoured companies whose names are recited in the Act. But the 54th section describes what the exceptions are which are referred to in the 6th section; and the language of the 54th section is, I think, extremely plain. Its purport is not to interfere with the right of any company or set of persons, or any person whatever, who was engaged in manufacturing gas for his own use at the time when the Act passed, or otherwise than for the supply of the public as a trade or business. The simple question is, is this company, called the West London Junction Gas Company, or was it at the time when the Act of Parliament passed, engaged in the manufacture of gas as a trade or business for the supply of the public. It supplies not the public—that is quite clear, but the Great Western Railway Company, upon whose ground its manufactory is situated; the Metropolitan Railway Company, who are a branch of the Great Western Railway Company; and the Great Western Hotel, of which the Great Western Railway Company are the landlords. And the question is whether the Great Western Railway Company, the Metropolitan Railway Company, and the Great Western Hotel Company, constitute the public, and whether supplying them is supplying the public. The matter is absurd. It is impossible to say that it is, and the case seems to me to come very clearly within the exception so properly described in the 54th section of the Act. Part of the evidence in this case is a transcript of the shorthand-writer's notes of what is clearly shown to have taken place before the committee of one or other of the Houses of Parliament at the time when this Act passed. It is said that this is not legitimate evidence. There cannot be any doubt about this, that an Act of Parliament, like any other instrument, is to be construed by reference to the evidence as to what was known by and called to the attention of the persons engaged in the framing of that writing or document at the time when it was framed. It is perfectly legitimate evidence what passed before this committee as to the existence of what is called this "little company," and the very limited purpose for which it exercised its manufacture of gas. The case of the plaintiffs wholly fails, and the bill must be dismissed with costs as against all the defendants.

COURT OF BANKRUPTCY.

FRIDAY, JULY 13.

(Before Mr. Commissioner HOLROYD.)

Re TOM ABERCROMBIE HEDLEY.

This was the sitting for examination and discharge. The bankrupt was described in his own petition as of No. 28, Poultry, in the City of London, and of Kingswood Lodge, Mortimer Road, St. John's Wood, in the county of Middlesex, civil engineer, in co-partnership with Davis Wilson Rea, of No. 28, Poultry, in the City of London, contractor. The debts were returned at £1657 11s. 1d.—viz., To creditors unsecured, £1157 11s. 1d.; to creditors secured, £500. There are no assets. The bankrupt states that the amount of his expenditure for the support of himself and family for the year preceding his bankruptcy was about £800, and the year previous about the same.

Mr. GEORGE appeared for the bankrupt; Mr. BELLAMY for the assignees; and Messrs. VALLANCE and VALLANCE for an opposing creditor, Mr. Wallington, of Leamington.

Mr. BELLAMY: I appear for the assignees in this case, and I have to apply that the bankrupt may be ordered to file a partnership account.

The COMMISSIONER: You are assuming that I know what is passing in your mind. I was not aware that the proceedings did not disclose a partnership.

Mr. BELLAMY: The schedule of the bankrupt is as to his own private estate, but his petition shows that he is in partnership with a Mr. Rea, and Mr. Rea is not a bankrupt. I think your honour will say that we are justified in asking for an account. There is no goods, cash, or trade account filed.

Mr. WALLINGTON: I am a creditor for £165 9s. 4d.; my proof is on the file, and I want to ask the bankrupt with reference to money owing to him at the time of his bankruptcy, also with reference to a bill of sale given to a Mr. Tibbitts for £200. I want to know what consideration was given for it, and what it has realized. There are no accounts filed which show it.

The COMMISSIONER: He will have to file proper accounts.

Mr. WALLINGTON: It is material, because of one large sum due to the

estate. The bankrupt has received a part of it, and there is no account respecting it.

Bankrupt: Perhaps your honour will allow me to state that the party who has just spoken I have under an indictment for perjury.

The COMMISSIONER desired the bankrupt not to interpose any remarks.

Mr. GEORGE: Perhaps your honour will allow me to state the circumstances of this gentleman's claim. His proof, which is upon the file of these proceedings, was a matter of discussion before the registrar. This gentleman has had a true bill found against him for perjury, which is now pending, and an application was made to the registrar for the purpose of stopping my client from going on with the prosecution. Now all that he can require is the account passed by the assignees. He is the solicitor to a Board of Health, and there is a memorandum on the file respecting his claim. Under the circumstances, I think it will be better for all parties not to go into this matter.

Mr. WALLINGTON: I object to this statement. The claim of the bankrupt was against the Board of Health, but the other was a charge against me individually—a charge which I am prepared to meet at the proper time. I can prove that the bankrupt received a large sum of money immediately preceding the presentation of his petition, which is not in the balance-sheet, and that he has recently applied for payment of a further large sum of money.

Mr. GEORGE: It is admitted that he had a claim, and, in consequence of the perjury, he was unsuccessful and had to come to the Court of Bankruptcy.

Mr. WALLINGTON: I am prepared to meet that charge.

The COMMISSIONER: All this appears to have been gone into before the registrar; the claim of Mr. Wallington is admitted as a proof, and there has been no application to set it aside.

Mr. GEORGE: Admitted, subject to the hearing of the indictment.

Mr. WALLINGTON: I assure you it was nothing of the kind. The registrar unconditionally received the proof. I wish to ask the bankrupt whether he has been employed by the corporation of London.

The bankrupt in an excited manner made some remarks, to the effect that he objected to reply to questions put by a man under an indictment for perjury.

Mr. GEORGE said the weather was very warm, but he would advise his client to be a little cool in this matter.

The COMMISSIONER said, if there was any exhibition of this kind again, he would adjourn the examination *sine die*.

Bankrupt: I have been employed by the corporation of London.

Mr. WALLINGTON: What has been your charge for that employment?

Bankrupt: In my individual capacity none.

Mr. WALLINGTON: What have you received on account of that employment?

Bankrupt: A month or so before I became a bankrupt I received a cheque.

Mr. WALLINGTON: A month before you became a bankrupt?

Bankrupt: Yes.

Mr. WALLINGTON: Will you swear that it was not a week?

Bankrupt: I will.

Mr. WALLINGTON: You will?

Bankrupt: It was some time—I will not swear what time.

The COMMISSIONER: You have sworn that it was about a month.

Bankrupt: I cannot tell the day I received it—it was £50. I cannot tell the date—it was some time before.

Mr. WALLINGTON: You say to the best of your belief it was about a month?

Bankrupt: To the best of my belief about a month.

Mr. WALLINGTON: What sum did you receive?

Bankrupt: £50.

Mr. WALLINGTON: Is that entered in your balance-sheet?

Bankrupt: It is not.

Mr. WALLINGTON: Why is it not?

Bankrupt: Because it was a month before I thought of becoming a bankrupt.

Mr. WALLINGTON: What is the amount you have sent in an account to the corporation of London for?

Bankrupt: Individually none.

Mr. WALLINGTON: What is the amount which you and your partner have sent in an account for to the corporation of London?

Bankrupt gave no reply.

Mr. GEORGE: He is asking his partner.

The COMMISSIONER: If you know nothing about it, say so.

Bankrupt: I do not know anything about it.

Mr. WALLINGTON: What application have you made to the corporation of London in respect of that matter recently?

Bankrupt: I have not made any application. I saw the engineer a few days ago and he struck off a certain portion of that account. I referred it to my partner, and what arrangement he made I do not know.

Mr. GEORGE: The claim you made was somewhere about £200?

Bankrupt: Yes.

Mr. GEORGE: And you received £50?

Bankrupt: Yes.

Mr. WALLINGTON: Is that stated in the account?

Mr. GEORGE: How can it be?

The COMMISSIONER: He will have to furnish a balance-sheet.

Mr. WALLINGTON: You say you gave a bill of sale to Mr. Tibbitts?

Bankrupt: I did.

Mr. WALLINGTON: For what amount?

Bankrupt: My memory is not particularly good.

Mr. WALLINGTON: How much was it for?

Bankrupt: I cannot tell you.

Mr. WALLINGTON: You cannot tell the amount?

Bankrupt: No; my impression is that it was for £200 or £230.

Mr. WALLINGTON: How long ago was that?

Bankrupt: More than two years ago.

Mr. WALLINGTON: What was the cost of your furniture originally?

Bankrupt: Nearly £1000. I insured it for some years at that.

Mr. WALLINGTON: Has that furniture been sold?

Bankrupt: Every ha'pennyworth, and it did not realize the amount of the bill of sale, I am told.

Mr. WALLINGTON: Who was the auctioneer?

Bankrupt: Mr. Lumley. They left me without a bed to lie on.

Mr. WALLINGTON: When was that?

Bankrupt: The day after the sale.

Mr. GEORGE: You did not sell?

Bankrupt: I did not sell.

The Commissioner: The examination will take much longer if you volunteer information.

Mr. WALLINGTON: When was the bill of sale put in force?

Bankrupt: A week before the 23rd of May.

Mr. WALLINGTON: Was that just preceding your bankruptcy?

Bankrupt: I filed my petition on the 19th of May.

Mr. WALLINGTON: Then this was a few days before you filed your petition?

Bankrupt: I filed my petition in consequence of the bill of sale being put in force, and in consequence of your taxing your bill of costs.

Mr. WALLINGTON: You say you have not received any of the proceeds of the sale?

Bankrupt: No; and I am told that it did not realize the amount of the bill of sale.

Mr. WALLINGTON: Had you had any communication with Mr. Tibbitts?

Bankrupt: Not at all.

Mr. WALLINGTON: What was the consideration for that bill of sale? Was it for cash lent to you?

Bankrupt: Whether I received £160 in cash or not I do not know. I do not know whether the consideration was £160 in cash and 20 per cent. for interest, which would make it £200; or whether it was £200 and £30 for interest. I do not know. I signed the bill of sale but never read it.

Mr. WALLINGTON: Was any interest due at the date of the bankruptcy?

Bankrupt: There was not.

Mr. WALLINGTON: What interest was reserved?

Bankrupt: 20 per cent.

Mr. WALLINGTON: Did you keep any accounts in which you entered it?

Bankrupt: I never kept an account in my life.

Mr. WALLINGTON: But you have been in an extensive way of business?

Bankrupt: No, never been in business; I am a professional man.

Mr. WALLINGTON: Have you not been a proprietor of gas-works?

Bankrupt: Yes.

Mr. WALLINGTON: And never kept any accounts of them?

Bankrupt: No.

Mr. WALLINGTON: Are you the lessee of any gas-works at the present time?

Bankrupt: Yes; one small one at Southam, in Warwickshire.

Mr. WALLINGTON: Uxbridge?

Bankrupt: No; I have nothing to do with them.

Mr. WALLINGTON: Who has?

Bankrupt: Two years ago they were taken by Messrs. Tatham and Rye.

Mr. WALLINGTON: And have you had an account with the gas company?

Bankrupt: I have.

Mr. WALLINGTON: Owing to you?

Bankrupt: No.

Mr. WALLINGTON: When was that account?

Bankrupt: Two years ago.

Mr. WALLINGTON: Have you had no account since then?

Bankrupt: No.

Mr. WALLINGTON: Who has?

Bankrupt: Tatham and Rye. For the last two years everything has been done in their names.

Mr. WALLINGTON: Was that a partnership matter?

Bankrupt: Well, Mr. Rea was a partner in all my matters; but the people who hold the lease say they will be no party to his being a partner.

Mr. WALLINGTON: Was Mr. Rea a partner in the sums which you received for your professional duties?

Bankrupt: From the 1st of January. He took all the money that was owing to me at the time.

Mr. WALLINGTON: Is that stated in the accounts?

Bankrupt: It is not. I state in my petition that I am in partnership with Mr. Rea.

Mr. WALLINGTON: What is Mr. Rea?

Bankrupt: An accountant.

Mr. WALLINGTON: Then he is not a professional man?

Bankrupt: He is not.

Mr. WALLINGTON: He receives the whole of your proceeds?

Bankrupt: Unluckily, from your proceedings my proceeds have been *sil.*

You made up your mind to put me down—

The Commissioner: Now!

Mr. WALLINGTON: Now, I ask whether, on the 9th of July, you wrote a letter to the corporation, signed "Hedley and Rea," asking for the balance of your account?

Bankrupt: I did not.

Mr. WALLINGTON: Do you know of any such letter being written?

Bankrupt: I know such a letter was written, but whether it was on the 9th of July I do not know.

Mr. GEORGE: It was written to ask for the balance of the £200?

Bankrupt: Yes.

Mr. WALLINGTON: I have some further questions to ask, but I will reserve them till the accounts are filed.

Mr. GEORGE: There will be a deficiency account and a cash account, but as he has not been in business he cannot furnish a goods account.

The Commissioner: Then he will say so.

Mr. GEORGE: For six months, I suppose?

Mr. WALLINGTON: The adjournment will be at the cost of the bankrupt, it having become necessary because no accounts are filed.

The Commissioner: It is his own petition?

Mr. GEORGE: Yes.

The Commissioner: Then he must pay the cost.

The further examination was then adjourned to Thursday, Nov. 15, at twelve o'clock.

Miscellaneous News.

THE EUROPEAN GAS COMPANY, LIMITED.

The Annual General Meeting of the Shareholders of this Company was held on Wednesday, July 11, at the Offices of the Company, 4, Frederick's Place, Old Jewry, London—SHEFFIELD NEAVE, Esq., in the chair.

The SECRETARY read the advertisement convening the meeting, and the minutes of the proceedings of the extraordinary half-yearly general meeting of shareholders held on the 14th of February having been read and confirmed, the report, of which the following is an abstract, was submitted to the proprietors:—

Amiens.—Increase of lights, 549. In the statement laid before the shareholders on the 14th of February last, it was foreseen that the profits of the current year would be necessarily affected, to a great extent, by the reduction of price, equivalent to 25 per cent., submitted in order to secure the exclusive privilege of lighting

one moiety of this city during a long term of years. The amount in question is now ascertained to be £1469, and, as the reduction of profit is only £761, it is evident that the new concession has already reproduced more than half the amount given up.

One of the gasholders and the entire set of purifiers, which were out of repair, have been put in good condition, at an expense of £300.

By means of great care and skilful working it may be possible to provide for next winter's lighting with the present retort-house only, but a new building will be imperatively required soon afterwards; and your directors have entered into a contract for erecting the same. The foundations are now being made, but the principal part of the outlay will be deferred until the year 1867.

Boulogne.—Increase of lights, 1443. It was anticipated in the last report that the returns from this establishment would be unfavourable, owing to the falling off of local prosperity, which has occasioned great economy to be exercised by shopkeepers and others in the use of gas. Very active measures have been successfully taken to secure new burners, without which the total sale of gas would have been considerably less than in the previous year, and the results still more unsatisfactory.

Means are also being taken to encourage the introduction of gas into private houses, and some success has already attended the efforts so made. Your directors look to this source for a large extension of business in the future.

Should the bathing season induce many visitors to take up their quarters at Boulogne this year, it is probable that a favourable turn will take place in the affairs of the station.

Caen.—Increase of lights, 582. The result, as shown by the profits, needs but little comment. It fully confirms the favourable anticipations expressed at the last meeting, and may be considered as an earnest of further progress.

The works are in a highly satisfactory state.

Lezve and St. Adresse.—Increase of lights, 1733. The final reduction of price stipulated for under the company's concession affected the rental for the past year to the amount of £622, and, seeing that, notwithstanding this drawback, the profit is considerable, your directors feel justified in congratulating the shareholders on the improvement which has taken place.

The tank of the large gasholder taken over from the French company has been emptied, examined, and so far repaired as to render the leakage of little importance for the future.

Nantes.—Increase of lights, 1857. Although the increase of rental is not large, in consequence of the failures previously reported, a considerable improvement in the profits has been realized, owing to various circumstances, the principal of which was the advantageous state of the freight market whilst grain and flour were being shipped in abundance from Nantes to England. During this time your directors availed themselves of every favourable opportunity to secure vessels outwards for the conveyance of coals to this port on low terms, and thus realised a reduction of freight exceeding £700 for the year.

It is satisfactory to be able to state that the prospects of the station, which appeared so long overclouded, are brightening, and encourage the hope that the business of the company will now progress more rapidly than for some years past, both in shops and private houses.

Rosen, Solteville, and Suburban Districts.—Increase of lights, 909. Had all the cotton factories continued at work throughout the winter evenings, a far more favourable statement would have been presented to the shareholders; but many altogether ceased burning gas early in the year, and others quickly followed. A large failure has recently taken place and others are impending; it is, therefore, not prudent to indulge in very sanguine expectations, as regards the current year; but whatever may be in store for this establishment it can hardly lead to a worse state of affairs than that which your directors have had the unpleasant task of reporting for several years past.

The retort-house has been completely renewed at an expense of £1338, and prepared for future extensions, which may be effected at very small cost when required. The greater portion of this large expenditure, added to that of last year, has been owing to changes necessitated by extensions rather than by ordinary repairs and reinstatements of what has been suffered by decay. It might perhaps have been properly considered as outlay, but your directors have jealously and strictly adhered to their rules in regard to wear and tear, and the reimbursement will be divided over the gains of several years of this station.

Summary.—Increase of lights, 7066. That a most favourable result should have been obtained notwithstanding reductions of price in two of the towns, and in presence of a state of trade which seems seriously to have interfered with the progress of the company's operations (the total increase of rental having been only £3013, or barely 3 per cent., must be considered exceedingly satisfactory. Under these circumstances it is reasonable to expect that as soon as a general revival of business shall take place in the cities supplied by the company the rental may resume its former ratio of increase, and which for some previous years was 10 per cent. The large addition to the profits would necessarily be immediate and important, bearing in mind that all the works are in excellent condition and on such a scale as to require but a moderate annual outlay for necessary extensions.

It is gratifying to be in a position to state that the company and its officers are on excellent terms with the authorities at every station.

Your directors recommend the payment of the usual dividend at the rate of 8 per cent. per annum on both old and new shares, together with a bonus at the rate of 2 per cent. per annum, making 10 per cent. for the year. After providing for this, together with the interest on debentures, which exceeds the amount of the previous year by £1288 1s. 7d., a balance will remain of £118 9s. 10d, which added to the reserve-fund of £2861 10s. 2d. will make the total £2980.

Notice has been given that two of your directors—William Stephen Dew, Esq., and Sheffield Neave, Esq.—and both auditors—Felix Ludbrooke, Esq., and William Jones Lewis, Esq.—retire from office at this meeting, but being eligible, will be proposed for re-election.

The CHAIRMAN said: Gentlemen, you have heard the report, which, as regards the stations, is certainly a chequered one; but you will remember that in February we pointed out that the returns of two of the stations were likely not to be altogether satisfactory. That expectation has been justified by the result. The stations, however, as a whole you must view as satisfactory. You must not forget that we have £1288 more of interest to pay this year than we had last, owing to an increase in the bonds issued. It perhaps may appear to some that we have been rather rapid in the amount laid out, but we anticipated the same proportion of success as in former years; and it must be confessed that the business has not increased so rapidly as we were led to expect. However, that will explain to you the demand made upon us for £1288 more than we had to meet last year. There is one pleasant feature with regard to the increase of business—it is, that from January we have had each month an increase, although we have not reached 10 per cent., not having got into the winter months, yet, taking the five last months, we are happy to inform you that the prospect is encouraging, and the rental I hope will continue to improve. I mention that to show that if the demand made upon us should go on increasing as we were led to anticipate, we have made provision for it. I am happy to say also that we are on very agreeable terms with the authorities at all our stations, and you will readily understand that that is a most important matter. Recently we have received very valuable assistance from a mayor of one of the towns in promoting an object which we had to carry through. We have not this year had to trench upon the reserve-fund, but we carry a small balance to it. That at least is a sign of improvement, and shows that we do not stand still. Our rental has not increased much more than £2600 this year, and yet we are enabled to pay you the usual dividend out of profit. That cannot have been obtained without some exertion, and I think I may say that it has required economy and good working in order to realize such a result. You who are persons capable of appreciating the value of such qualities in industrial occupations will approve it, I am sure. I shall be very happy to answer any questions which proprietors may desire to put to me, and I move the adoption of the report.

Mr. T. N. STOKES seconded the motion, and said he was very glad to find that the two stations upon which they had anticipated a loss were going on so satisfactorily. They had concessions for a great number of years, and the

directors wisely charged a very low price for the gas which was supplied. He had no doubt next half year they would see a considerable improvement.

Mr. HUGGINS inquired whether there was any probability of the board calling up any money on the new shares.

The CHAIRMAN replied in the negative, and stated that as good financiers they would delay calls as long as possible.

The motion for the adoption of the report then passed unanimously.

A resolution authorizing the payment of a dividend at the rate of 10 per cent. per annum was carried *sem. con.*

The retiring directors were unanimously re-elected.

The CHAIRMAN acknowledged the vote, and said he believed he was the father of the company, at all events he had been in its service for 34 years, and he could only say that the constant renewal of confidence on the part of the proprietors did not tend in any way to weaken his estimate of the compliment conferred upon him. He should continue to regard the company with a paternal solicitude, and be happy to render it any service that he was able to perform.

Mr. DEW said if the chairman was the parent of the company he had had the honour of a seat at the board for nearly 20 years, and would say with the chairman that any service he could render would be most willingly afforded.

The retiring auditors were unanimously re-elected.

Mr. HUGGINS moved a vote of thanks to the chairman and directors for their able management of the company's affairs during the past twelve months.

Mr. WHITE acknowledged the vote on behalf of himself and his brother directors, and said he had recently visited the stations, and had been exceedingly pleased with the very good arrangements made at them, and the manner in which the works were progressing. It was a great credit to the secretary and to everybody concerned. They might rest assured that every word which was in the report was founded on fact.

The CHAIRMAN said there was one other person whom he should like to be comprehended in their compliments, and that was the secretary. He had frequently at previous meetings borne testimony to his services, and he could offer Mr. Backler to the proprietors as a most valuable officer of the company. They owed a great deal to him, and his attention was undivided and unremitting.

Mr. LEWIS seconded the motion, and said the indefatigable exertions which Mr. Backler bestowed on the affairs of the company, and the very affable manner in which he received everybody, entitled him to the warmest consideration of the proprietary generally.

The resolution passed unanimously.

Mr. BACKLER thanked the meeting for passing the resolution, and said he was much gratified by the manner in which it had been proposed by the chairman and seconded. It was extremely flattering and encouraging to him to receive another mark of the approval of the shareholders. He devoted the whole of his energies to the affairs of the company, and had great faith in its future prosperity. He considered that a great deal would depend upon the extension of the use of gas to private dwellings. They had already succeeded in getting the thin end of the wedge in at three of their stations, and they intended to push it vigorously home. France was behind England in that particular, because gas was not used largely in houses as it was in this country. However he had great confidence that it ultimately would be so used, and he would do all in his power to further it.

On the motion of Mr. DEW, a vote of thanks to the auditors closed the proceedings.

METROPOLIS GAS SUPPLY.

CITY OF LONDON COURT OF SEWERS, GUILDHALL, TUESDAY, JULY 17.

At the Meeting of the Commissioners, this day—Mr. DE JERSEY in the chair—the consideration of the appointment of gas analyst for the City was resumed. At the first meeting of the present commission it was decided to appoint that gentleman for three months; and as that term had just expired the question again came before the court.

The motion being put from the chair, that Dr. Letheby be appointed the gas analyst of the City during the continuance of the present commission.

Deputy BURNELL proposed that the salary of the officer should be £100 per annum.

The CHAIRMAN explained that by a resolution passed upon a former occasion, the court had fixed the salary at £200.

Dr. LETHEBY, being appealed to, stated that out of the £200 per annum fixed by the court he had to pay £100 to an assistant, whose duty it was to make examinations of the gas and furnish him with the figures, in order that the results might be laid before the court at each meeting.

Deputy SNEELLING asked what became of the weekly reports so made.

Dr. LETHEBY said that copies were sent to each of the gas companies. He added, further, that they contained a statement showing the maximum, minimum, and average quality of the gas supplied by each of the companies, namely, the City, the Chartered, and the Great Central; the maximum, minimum, and average quantities of sulphur in the case of each company, the pressure of water, and the number of observations taken.

Deputy BURNELL pressed his proposition to reduce the payment to the gas analyst to £100 per annum.

The CHAIRMAN said he thought after the resolution to which he had already referred, fixing the salary at £200, the court would be placed in a false position if they entertained the proposition of Deputy Burnell at that moment. Of course it was quite competent for any member to make any provision for reviewing any of the past proceedings of the commission, but it must be done in a regular way, and proper notice of motion given in the first place.

Mr. RUDKIN said the real question for the court to consider, he thought, was whether it would not be better for them that day to appoint the assistant to the gas analyst at once, for it was clear that he made all the examinations and the necessary testings from which Dr. Letheby merely made up his report, which was presented weekly to the commission, and copies of which were ordered to be sent to the gas companies.

Dr. LETHEBY said it was true the assistant made, under his superintendence, examinations and testings of the gas, but he himself made testings several times a week, and notice when those testings were made was served upon the companies, so that their officers could be present when they were made. In point of fact, the examinations of the gas were made by himself personally.

The CHAIRMAN observed that notice was served upon the companies by order of the court.

Mr. RUDKIN said the Act of Parliament provided that such notice should be served, but it was that which operated so detrimentally to the gas consumers, for they had it in evidence before the select committee of the House of Commons that the companies could, within two hours, alter the quality of the gas—even from 10 to 15-candle gas.

Deputy BOKE said it was clear a gas analyst must be appointed, in order that the public interests might be protected, for otherwise they might depend upon it the companies would supply much worse gas than was at present obtained.

After some further conversation, in the course of which Mr. FRICKER, Deputy FARRAR, and other members took part, an amendment was proposed by Deputy BURNELL, and seconded by Mr. RUDKIN, that Dr. Letheby be appointed gas analyst for a further period of three months.

The amendment was put, and, upon a show of hands, was declared to be negatived. Dr. Letheby was then appointed gas analyst of the City during the continuance of the commission.

CONVICTION OF A GAS COMPANY FOR SUPPLYING IMPURE GAS.—The Newcastle Gas Company have been charged before the magistrates with unlawfully supplying gas which was not equal to that prescribed by their Act of Parliament, inasmuch as it contained more than 15 grains of sulphur to every 100 feet. The clause under which the proceedings were taken had been inserted in the Act at the instance of the corporation, who were now the complainants. It was proved by an analytical chemist that on the average there were 24.11 grains of sulphur in every 100 feet of gas. The magistrates considered the complaint to be proved, and inflicted a penalty and costs—nearly £25.—*Mechanics Magazine.*

PROBABLE ADVANCE IN THE PRICE OF GAS IN SCOTLAND.—The gas companies throughout Scotland appear to be feeling somewhat seriously the great increase in the price of coals, the general advance of wages, and the fall in the price of sulphate of ammonia and naphtha. The Edinburgh and Leith Gas Company has been compelled, we understand, to reduce its dividend from 8 to 5 per cent.; the Dundee New Gas Company lately reduced its dividend from 6 to 4½ per cent.; and the Dundee (Old) Gas Company on Wednesday declared a dividend minus one-half of the bonus hitherto paid—being a reduction amounting to 10s. per share. All over the country gas companies are being similarly affected. Although the amount of gas consumed is still increasing, the expenditure connected with its manufacture is also rapidly increasing, so that there is a prospect, in a short time, of consumers having to pay an increased rate for it. This will be avoided by most companies as long as possible; but unless some other and more favourable turn takes place in the principal articles used, an increase in price must inevitably follow.

DR. WHITMORE'S REPORT ON THE QUALITY OF THE GAS SUPPLIED IN ST. MARYLEBONE, IN JUNE, 1866.—

JUNE.	Illuminating Power in Sperm Candles.			Mean Pressure in 10ths of an inch.	
	*Mean of 26 Observations.	Highest.	Lowest.	Highest.	Lowest.
Imperial Company's gas	15.10	16.39	14.03	25.60	8.71
Chartered Co.'s common gas . . .	13.70	14.87	12.21	30.53	12.71
Chartered Co.'s canal gas	21.75	24.38	20.15	29.22	11.01

* Each observation consists of 10 readings of the photometer.

The above table shows that the illuminating power of the three gases consumed in the parish during the past month has been highly satisfactory. Observations have, as usual, been made daily, and at different periods of the day, and on no occasion has the intensity of light been less than what the law requires. The Imperial gas has shown a mean light equivalent to rather more than 15 sperm candles, or 25 per cent. above the parliamentary standard, twice it exceeded 16 candles, on eleven other occasions it was over 15 candles, and on no occasion did it fall below 14 candles. The common and canal gases of the Chartered Company gave an average light of rather more than a candle and three-quarters beyond the standard, the former being 14 per cent. in excess, and the latter nearly 9 per cent. The pressure of all the gases has been good, sometimes very high, occasionally rising to 3 inches. As regards purity, no trace of sulphuretted hydrogen has been found in either of them, whilst variable quantities of ammonia have always been present. The meter for registering the quantity of gas supplied to the apparatus for testing sulphur being out of order, no correct results, as regards the amount of this impurity, have been obtained. The above results are obtained from the Imperial Company's gas at their Fulham works, and from the Chartered Company's common and canal gas manufactured at their works in the Horseferry Road, Westminster.

DR. WHITMORE'S REPORT ON THE QUALITY OF THE WATER SUPPLIED IN ST. MARYLEBONE, IN JUNE, 1866.—

JUNE.	Total Solid Matter in degrees or grains per Imperial gallon.		* Loss by Incineration of Solid Matter in previous column.		Ammonia.
	MAY, 1866.	JUNE, 1866.	MAY, 1866.	JUNE, 1866.	
Distilled Water	0°	0°	0°	0°	0°
West Middlesex water	18.80	17.28	0.68	0.60	....
Grand Junction water	18.76	17.72	0.73	0.68	....
Pump in Princes St., Cavendish Sq. . . . .	....	30.56	....	1.04	0.052
Pump in Queen Street, Edgware Road . . . .	....	74.32	....	3.36	1.564

* The loss by incineration of the solid matter represents the amount of organic and other volatile matters contained in 70,000 grains of water.

ACCIDENT IN PARIS BY THE IGNITION OF NAPHTHA.—A fire suddenly broke out in the stables of the Cirque de l'Impératrice, in the Champs Elysées, at ten in the morning of Friday last, and notwithstanding the efforts of the firemen, who arrived almost immediately, three men were so dreadfully burnt as to leave but little hope of their recovery. They were taken to the Hôpital Beaujon in a hopeless state. All the horses were saved with the exception of four, which were burned in a dreadful manner. Their flesh was, in fact, consumed on their backs, and they had to be taken to the Champ de Mars to be shot. This disaster originated in an explosion of naphtha, a quantity of which was kept in a cellar below the stables. Three workmen descended to this store, when by accident one of the vessels was broken, and an explosion took place. The men were instantly covered with the burning fluid, and frightfully injured. The son of the concierge was also injured. The lions were removed in safety.

THE LENOIR GASE-ENGINE.

By F. J. SLADE.

[From the Journal of the Franklin Institute.]

Having had considerable opportunities for observing the practical working of this machine, the writer has thought some of the phenomena of its operation of sufficient interest to be made public. The principle of its action is as follows:—The piston moving at the beginning of its stroke by the momentum previously imparted to the fly-wheel, draws into the cylinder, through a suitable slide-valve, a mixture of common illuminating gas and air. When the piston has moved through a little less than half the stroke the valve closes, and an electric spark is introduced into the cylinder and ignites the gas. The expansion caused by the heat of combustion drives the piston during the remainder of the stroke.

The composition of coal gas is not the same in all cases, but varies with the kind of coal used in its manufacture, and the extent to which the distillation is carried. A constitution probably not far from the average in our cities would be expressed by

Olefant gas	7
Light carburetted hydrogen	56
Hydrogen	21
Carbonic oxide	11
Nitrogen	5
	100

Now, in combustion, 1 cubic foot of olefant gas unites with 3 cubic feet of oxygen, and gives 2 cubic feet of carbonic acid and 2 of vapour of water. One cubic foot of light carburetted hydrogen unites with 2 cubic feet of oxygen, and gives 1 cubic foot of carbonic acid and 2 of vapour of water. One cubic foot of hydrogen unites with one half a cubic foot of oxygen, and gives 1 cubic foot of vapour of water. One cubic foot of carbonic oxide unites with one half a cubic foot of oxygen and gives 1 cubic foot of carbonic acid.

The result of the combustion of 100 cubic feet of coal gas, therefore, will be represented as follows:—

	Oxygen.	Carbonic Acid.	Vapour of Water.
Olefant gas	7 + 21 yields	14	14
Light carburetted hydrogen	56 + 112 "	56	112
Hydrogen	21 + 10½ "	—	21
Carbonic oxide	11 + 5½ "	11	—
Nitrogen	5	Nitrogen 5	—
	100	86	147
Nitrogen associated with oxygen in air	149	560	—

Original gases 809 yield products of combustion, 793.

We see from this that for the perfect combustion of gas of ordinary quality we must supply seven volumes of air for each volume of gas, and that for gases containing a greater proportion of hydrocarbons a greater quantity of air will be required, and, at the same time, the bulk of the products of combustion will be greater.

By applying a Richard's indicator of unusually delicate workmanship the writer obtained from an engine of 8½ inches diameter of cylinder, and 16½ inches stroke, diagrams of which the accompanying is a fair specimen.



DIAGRAM A.—50 revolutions.

In this case, as the explosion did not occur immediately on the closing of the valve, the tension of the gases falls to 11 lbs. per square inch (above a vacuum). After combustion it rises to 48 lbs. The temperature necessary to produce this pressure is found by the formula—

$$t_2 = \frac{P_2}{P_1} \left(1 + k(t_1 - 32^\circ) \right) - P_1 + 32^\circ,$$

in which t_1 = temperature of the gases before combustion, taken at 200° on account of the warmth of the cylinder.

P_2 is 48 augmented in the proportion $\frac{48}{11}$ and the mean coefficient of expansion k of the gases under constant volume is .00204. This gives us as the temperature of the gases at the moment of combustion 2474°. The dotted line represents the theoretical curve of expansion, taking into account the loss of heat and consequent fall of pressure due to the work done (which is the proper theoretical curve for an indicator diagram). The temperature at the end of the stroke indicated by this line would be 2156°. The actual final temperature shown by the diagram, supposing there to be no leakage, is 1438°, and the difference, 718°, is the quantity of heat absorbed by the water-jacket with which the cylinder is surrounded. It will be observed from this card, that the explosion takes place so late in the stroke that there is a considerable available pressure in the cylinder at the end of the stroke, which, of course, is not utilized. To prevent this waste, the manufacturer of these engines in this country (United States), Mr. Miers Coryell, sets the admission-valve so as to close earlier; and this has the further advantage, that at the middle of the stroke a given quantity of work is performed in less time than at the ends, and consequently there is less loss of heat.

The diagrams give information which may be of interest to some as to the time required for the explosion of such a mixture of gases. In this case it appears to be about $\frac{1}{2}$ of a second.

Diagram B was obtained on one occasion when the electrical points in the cylinder were wet, and owing to the uncertain passage of the spark the explosions were very irregular. It is introduced here to show the difference between explosions occurring at the middle of the stroke and those nearer

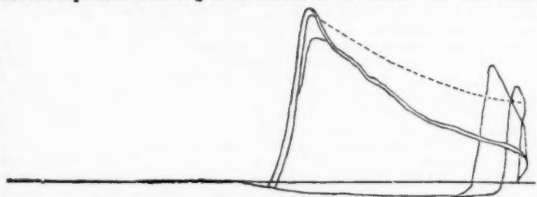


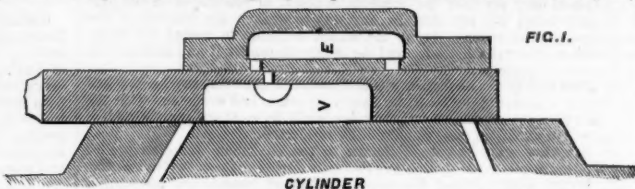
DIAGRAM B.—45 revolutions; 1 inch = 32 lbs.

the ends. It will be observed that the pressure attained in the later explo-

sions rises somewhat higher than the true expansion curve drawn from the point attained by explosion near the middle of the stroke (which, as for this purpose, there is no work to be taken into consideration, would stand at the end of the stroke 4.2 lbs. higher than that shown).

This is probably due to the greater heat acquired by the gases before explosion. It will also be noticed that the time of acquiring the maximum pressure is considerably greater in the later explosions, being $\frac{1}{30}$ of a second in the earlier and $\frac{1}{20}$ or more in the later.

Lastly, the great loss of pressure by cooling is strikingly shown—in equal times the lines fall below the height due to expansion alone by an amount proportionate to the pressure that the gases would have at 32°. In the early explosions in this diagram, the pressure rises from 13 lbs. before explosion

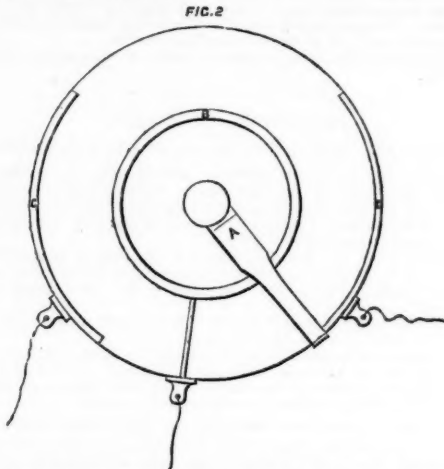


CYLINDER

to 60 lbs. after, corresponding to a temperature of 3090°. The dotted line represents, as before, the true expansion curve, including the loss of 420° of heat and resulting diminutions of pressure due to the work done.

The construction of these engines is simple, differing in but few particulars from an ordinary horizontal steam-engine. The cylinder and heads, as has been intimated, are cast hollow and kept cool by a current of water passing through them. The gas and air are admitted by a slide-valve shown in Fig. 1. The gas-pipe is connected to the chamber π bolted to the cylinder, and between which and the cylinder the slide-valve v moves. The gas passes through the small port shown in the back of the valve into the semi-circular channel which covers it, and through this up and out of the valve into the atmosphere. It is then drawn down again by the suction of the piston through a number of small holes into the cup of the valve, and thence into the cylinder. This ensures its thorough mixture with the air, while, at the same time, it prevents the possibility of explosion, since there is nowhere any explosive mixture except in the cylinder and cup of the valve, the latter being in open communication with the atmosphere. An air-chamber with openings, regulated by a slide, is placed over the holes in the valve to control the admission of air.

A separate valve on the other side of the cylinder is used for the exhaust. As constructed in the French engines this part is a weak point on account of the great heat to which it is subjected from the escaping gases. In the American engines, a small current of water passes through this valve and entirely removes this difficulty.



The spark for igniting the gas is supplied by a Bunsen's battery of one or two cells, and a Ruhmkorff coil giving from 100 to 150 sparks per second. It is distributed to each end of the cylinder by an arrangement shown in Fig. 2. An arm, a , insulated on the end of the shaft conducts the spark from the insulated ring, π , in connexion with the coil alternately to the segments c and d connected by wires to the respective ends of the cylinder. This arm is set so as to touch the proper segment just as the admission-valve closes.

To most persons it would probably appear that the great heat generated in the cylinder would be destructive of the surfaces. The writer, however, examined an engine that had been running regularly for a month, using in that time less than a quart of oil, and was surprised to find that the bore of the cylinder and the piston-rod, though dirty from deposits of impurities, were not even scratched.

The explosion of the gas is unattended by any noise unless the connexions are slack. The only size as yet constructed in this country is 4½ inches diameter of cylinder by 8½ inches stroke, though engines of larger dimensions are in process of construction. A friction dynamometer applied to one of these gave the following result:—

Length of lever	4 feet.
Weight applied	7 pounds.
Revolutions per minute	185
16,280 foot-pounds per minute	= $\frac{1}{4}$ -horse power.

In France there are engines of 3-horse power and upwards, but with the exorbitant prices of gas in this country, 1 or 2 horse power is probably as high a power as could economically be obtained from this motor. These engines have the advantage that the expense ceases immediately with the work, which is an especial recommendation where the work is intermittent. They can be started and stopped instantly by merely turning the gas-cock. They are absolutely free from danger and do not require the attention of an engineer; hence for small powers they are cheaper than steam. On account of their safety, they are admissible in situations where steam would not be.

DISMISSAL OF THE KINGSTON-ON-THAMES GAS-METER INSPECTOR.

At a Meeting of the Kingston-on-Thames Town Council, held on May 17, the following report from the Lighting Committee was read:—

Your committee beg to report that they have recently received a communication from a Mr. Detheridge, of the meter testing office of the Metropolitan Board of Works, to the effect that Mr. Taunton has been stamping meters out of the limits of the borough, and that he had obtained from the Exchequer Office ten gasholders, on the representations that they were required for the purposes of the corporation, and that eight of such gasholders were now being used for the purpose of stamping meters out of the borough, and within the limits of the Metropolitan Board of Works district; and it was further represented to your committee that Mr. Taunton was a short time back summoned before the Lambeth Police Court and convicted and fined £5 for breach of the provisions of the Sale of Gas Act, in having thus stamped gas-meters out of his district, but that, notwithstanding such conviction, he still persists in acting in contravention of the Act as the Board of Works conceive.

The Board of Works further represented, through Mr. Detheridge, that they were advised by counsel that the corporation were responsible for the fees illegally received by Mr. Taunton for stamping gas-meters as aforesaid, and that, should the corporation countenance Mr. Taunton's further proceedings, steps would be taken against the corporation for acting in conspiracy with Mr. Taunton.

Mr. Taunton was duly summoned to attend the committee meeting, at which these representations would be made, in order that he might meet Mr. Detheridge face to face, and render his answer to the matters alleged against him; but Mr. Taunton, though having duly received the letter requesting his attendance, failed to make his appearance.

In consequence of his absence, and of the serious nature of the representations made, your committee instructed the town-clerk to communicate with Mr. Taunton in writing, and to ask for an explanation in reply; but, notwithstanding that sufficient time has elapsed to answer the letter, no communication has been received from him.

Mr. P. JONES having asked the direction of the council, and the report having been received, it was resolved, on the motion of Messrs. Wenman and J. Marsh—

That the council do now suspend Mr. Taunton from the office of gas inspector to the borough, and that the Lighting Committee be authorized to take the necessary legal steps, and report again to the council.

The Surrey Comet, from which the above is extracted, published, on May 26, the following letters from Mr. Taunton's attorneys:—

26, Old Broad Street, London, E.C., May 24, 1866.

Sir,—In last Saturday's issue of your paper you have inserted a report of the proceedings of the Town Council of Kingston, containing statements made which are very prejudicial to our client, Mr. Taunton, and which are untrue. Correspondence on the subject has taken place, and we enclose copy of our letters in reply to those of Mr. Wilkinson, stating the resolution of the council, and which we shall be obliged by your inserting in your next issue, in order at once to correct the effect of such report, as we do not suppose that you have any desire to injure our client.

We are, sir, your obedient servants, SILLS AND GORDON.

26, Old Broad Street, E.C., May 17, 1866.

Sir,—Mr. Taunton has laid before us your letters of the 12th and 15th of May. On the receipt of the first he at once called at your office for information as to the representations made by Mr. Detheridge, and not having received a statement he was not prepared to attend the meeting, otherwise he would have done so. With reference to the ten gasholders, it is true that Mr. Taunton did obtain that number from the Exchequer. Two of them were not required, and were returned to the maker, and the others were fitted up and used at Kingston. Six of them are now at Kingston, and only two are in London, and those have not been used since the decision of the magistrate, that Mr. Taunton was not justified in stamping meters out of your district; but Mr. Taunton has attended at Kingston daily since that decision and stamped all meters there, and it is simply untrue that these holders, or any other holders, had been used by him at various parts of the metropolis.

With reference to Mr. Detheridge's statement that, "under colour of his appointment, and on the representation that they were needed for the borough," Mr. Taunton had obtained the ten holders in question from the Exchequer, we would remind you that those holders were not obtained in the manner so offensively stated, but upon your written order sanctioned by the corporation. In reply to the statement that no sanction of the Lighting Committee or the borough has ever been accorded to such a transaction as this, and to your letter generally, we would remind you and the committee of the facts.

When Mr. Taunton applied to the corporation with reference to the office of gas inspector, the corporation was desirous of adopting the Act of appointing an inspector, but hesitated to incur the risk or make the outlay on behalf of the borough if it could be avoided. Mr. Taunton then, by one of the gas journals, showed the large number of meters manufactured for the metropolis; and upon assuring the committee that he could obtain a sufficient number of those to pay his salary, it was agreed that he should be appointed, taking all the fees in lieu of salary,

and paying all outlay and expenses (as appears by the agreement with him, which you have thus relieving the borough of all risk and all outlay.

Upon the faith of this agreement Mr. Taunton not only purchased apparatus and paid the stamping, but also bought the land and erected the office at his own expense, the express terms being that he was to obtain business from any part of the metropolis.

With reference to the magistrate's decision, we have the opinion of a well-known counsel that it was wrong, but we did not consider it worth while appealing, as the penalty was only £5, and the legality of the stamps themselves we take it cannot be questioned, and therefore we submit that the corporation need be under no uneasiness as to the threatened proceedings for "alleged connivance." The Act was made for the accommodation of the public, and although districts are created, the restriction sought to be imposed by the Board of Works was never contemplated—indeed, it is more a personal matter of Mr. Detheridge's, against whom we have now issued a writ to stay the continued injury he is seeking to do our client.

Mr. Taunton has no desire to treat either the committee or yourself with disrespect; but he feels it necessary to assert his position against the attempted interference of third persons.

Yours truly, SILLS AND GORDON.

W. M. Wilkinson, Esq., Town-Clerk, Kingston.

26, Old Broad Street, E.C., May 22, 1866.

Re Taunton

Dear Sir,—This is an old-standing fight of the Board of Works with your borough and Mr. Taunton, and as the board at last succeeded in getting Mr. Elliot to fine Mr. Taunton as for "misconduct," they take advantage of that to intimidate your Town Council; but as Mr. Taunton since that has only stamped meters at Kingston, and will continue to do so, the Board of Works can do nothing more.

We find that you were not in office when Mr. Taunton was appointed, in 1861 (and this will explain what you could not understand as to the order for the holders, which we find was signed by Mr. Phillips), and therefore you are ignorant of what took place at that time; but if you will refer to the GAS JOURNAL of January 14, 1862, the following issue of the Surrey Comet, and the GAS JOURNAL of the 28th of January, 1862, you will find that the matter was publicly discussed, and your borough insisted upon its right to do all that has since been done.

We regret that the council should have put itself in a false position, and in fact rendered itself liable to an action for damages at the suit of Mr. Taunton; but if you will refer to the agreement with him and the minutes of your board, you will find that the statements in our letter are correct, and they are further corroborated by the public report in the Surrey Comet of the 30th of November, 1861, and you will then be better able to advise the council.

As we before stated, Mr. Taunton called at your office immediately on receiving your letter, to ascertain what charges were made against him, and, not having received any information, he could not properly attend the meeting or admit himself to be a wrong-doer; and the very day after he received your second letter he consulted us, as such a serious matter required legal assistance, and we wrote to you as soon as we could possibly do so; and the Town Council was therefore precipitate in the course it pursued, and as Mr. Taunton is seriously injured by the suspension, although disputing its legality, we must ask the Town Council, at their earliest convenience, to rescind their resolution; and we must also request you not to write to the Exchequer as mentioned in your letter. We put the matter thus formally (but without any feeling), as it may be necessary to proceed at law, which we should be very glad to avoid.

You will see, upon reference to the agreement, that the gasholders and other apparatus are the property of Mr. Taunton, and therefore of course he cannot be called upon to hand them over to the corporation. We trust that the full explanations we have given will be sufficient to enable you to rectify the matter at once, as the Board of Works has no ground whatever for its interference with your borough.

Yours faithfully, SILLS AND GORDON.

W. M. Wilkinson, Esq., Town-Clerk, Kingston.

At a subsequent meeting of the Town Council, held on the 12th inst., the town-clerk read a report from the Lighting Committee, describing correspondence and transactions which had taken place between the town-clerk and Mr. Taunton's solicitors.

Mr. B. MARSH, in the absence of Mr. P. Jones (chairman of the Lighting Committee), expressed the approval of the committee of the course taken by the town-clerk.

The CLERK explained the legal position of the corporation. Mr. WENMAN, having spoken in favour of Mr. Taunton being dismissed from the office of inspector of gas-meters, Alderman WILLIAMS moved, and Mr. PAGE seconded—

That Mr. Taunton be dismissed from his office of gas inspector of the borough for cause shown, and under the powers given to the Town Council by the Sale of Gas Act, and that the Lighting Committee be authorized to take the necessary steps for carrying this resolution into effect.

The resolution was carried.

Price Current.

Table with multiple columns: CASTINGS.—Per Ton. (Average Weight of Cast-iron Gas-pipes, per Yard.), GAS COALS.—Per Ton. (Newcastle.—Unincreased:—), FREIGHTS. (Coastwise—Newcastle.—Per Ton.—), WROUGHT-IRON TUBING. (Subject to 50 per cent. Discount.)

Share List of Metropolitan Gas Companies.

No. of Shares issued.	Amount paid up per share.	NAME OF COMPANY.	Amount paid up per Share.	Div. per Cent. Annum.	Price per Share.	No. of Shares issued.	Amount paid up per share.	NAME OF COMPANY.	Amount paid up per Share.	Div. per Cent. Annum.	Price per Share.	No. of Shares issued.	Amount paid up per share.	NAME OF COMPANY.	Amount paid up per Share.	Div. per Cent. Annum.	Price per Share.		
8000	10	Anglo-Romano	10 0 0	9 0 0	11 to 13	4000	50	Equitable	50 0 0	10 0 0	73 0 0	12000	5	Malta & Medit. (L.)	5 0 0	3 0 0			
5000	20	Bahia (Limited)	20 0 0	4 0 0	16 10 0	4000	25	Do., new shares.	25 0 0	10 0 0	36 to 37	30000	5	Oriental, Calcutta	5 0 0	8 0 0	43 to 51		
1600	20	Do., preference	20 0 0	10 0 0	27 10 0	23400	10	European (Lim.)	10 0 0	10 0 0	124 to 127	30000	5	Do., new shares.	5 0 0	8 0 0	3 to 1		
750	20	Do., do., redeem.	20 0 0	10 0 0	12 10 0	12000	10	Do., new shares.	5 0 0	10 0 0	64 to 67	10000	5	Ottoman (Limited)	5 0 0		2 to 4		
30000	5	Bombay (Limited)	5 0 0	25 intr.	4 to 4 1/2			Boulogne, Amiens, Rouen, Caen, Havre, Nantes.				10000	10	Para (Limited)	10 0 0	25 intr.	91 to 94		
10000	5	Do., third issue	4 0 0	25 intr.	3 to 3 1/2							27000	20	Phenix	20 0 0	10 0 0	24 to 25 1/2		
10000	20	British, Limited.	20 0 0	10 0 0	28 1/2 to 29 1/2							3600	100	Do., new	15 0 0	7 10 0	15 0 0		
		(Norwich, Hull, Sculcoates, Hanley, Tunstall & Shelton Potteries, Trowbridge, & Holywell.)				20000	10	Gl. Cent. Gas Cons.	10 0 0	10 0 0	124 to 13	14000	5k	Do. (expt. profits)	5 0 0	60 0 0			
						5000	10	Hong Kong (Lim.)	10 0 0		8 to 10	5000	20	Ratcliff	20 0 0	10 0 0	28 to 30		
						26000	50	Imperial, old sh.	50 0 0	10 0 0	70 to 71 1/2		20	Rio de Janeiro (L.)	20 0 0	10 0 0	20 1/2 to 21 1/2		
						1300	100	Do., bonds	100 0 0	10 0 0	180 to 185		6950	5	Singapore (Lim.)	5 0 0	3 0 0		
						7000	25	Imperial Austrian.	25 0 0			2000	5	Do., preference	5 0 0	7 10 0			
						38000	50	Impl. Continental	48 15 0	16 0 0	86 0 0		4800	50	Sh. Metropolitan	50 0 0	10 0 0	76 to 78	
								(Amsterdam, Berlin, Ghent, Hanover, Lille, Rotterdam, Aix-la-Chapelle, Antwp., Bordeaux, Brussels, Cologne, Frankfurt-on-M., Harlem, Stolberg, Toulouse, & Vienna)					15000	10	Surrey Consumers	10 0 0	10 0 0	13 1/2 to 14	
												10000	10	Do., new	3 0 0	10 0 0	6 to 6 1/2		
												9000	50	United General.	50 0 0	4 13 0	29 to 31		
														(Dublin & Limerick)					
														10000	10	Victoria Docks.	10 0 0	10 0 0	
														3000	10	Wandsworth & Putney	10 0 0	7 10 0	13 1/2 to 14
														20000	10	Western (Limited)	10 0 0	10 0 0	14 1/2 to 14 1/2
														10000	10	Do., B shares.	5 0 0	10 0 0	8 1/2 to 9
														10000	10	Do., C shares.	3 0 0	10 0 0	5 1/2 to 6
														20000	10	Do., D shares.	1 0 0		1 1/2 to 2
														8000	5	West Ham	5 0 0	7 10 0	6 10 0
														6000	5	Do., new shares.	3 0 0	7 10 0	3 15 0
														551	10	West London Junction (Lim.)	10 0 0	6 0 0	
														520	10	Do., preference	10 0 0	6 0 0	

Advertisements.

THE GAS-METER COMPANY, LIMITED, (LATE CROLL, RAIT, & CO.,)

Beg to intimate that the printed report of the official inspector of Gas-Meters for the City of Manchester for the year ending 1864 shows the following comparison:—

NEW METERS TESTED.	
Of the Gas-Meter Company, Limited	Dry 1116
	Wet* 1292
Total	2408
Of George Glover and Co.	Dry 383

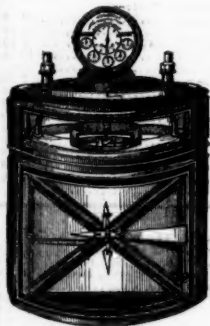
* The Unvarying Water-Line Gas-Meter, in regard to which the following extract from said report refers:—"The visiting justices will perceive, from a comparison of the tables now appended with those of last year (viz., 1863), that there has been a large increase in the number of new wet meters tested, owing to the Gas Committee having substituted the wet for the dry in the case of hired meters."

Extract from printed report of the said official inspector for the year ending 1862, shows the following comparison:—

Croll, Rait, and Co., per centage of error on the number tested	8.671
George Glover and Co.	22.727

E. J. & J. PEARSON, DELPH & TINTAM ABBEY FIRE-CLAY & BRICK-WORKS, STOURBRIDGE,

PROPRIETORS OF BEST GLASS-HOUSE POT & CRUCIBLE CLAY; MANUFACTURERS OF GLASS-HOUSE POTS, CRUCIBLES, GAS-RETORTS, & FIRE-BRICKS OF EVERY DESCRIPTION.



N. DEFRIES'S PATENT DRY GAS-METERS,

WITH THREE DIAPHRAGMS & ROTARY VALVES, ARE UNIVERSALLY USED IN ENGLAND AND THE COLONIES.

The MOST LIBERAL ALLOWANCE for WET GAS-METERS in EXCHANGE for DRY.

WORKS: DIANA PLACE, EUSTON ROAD.

WANTED, a Manager for a Gas-Work in Wales. Will have to take the indices of meters, collect accounts, and take the general management of the Works. Consumption 6 to 10 millions. None but a competent person need apply. Security required.
Address, with testimonials, Gas, 77, Market Street, MANCHESTER.

TOWYN GAS COMPANY.

WANTED, for the above Company, where there are about 300 private lights and 30 public lamps, a **STOKER** and **GENERAL MANAGER**, who understands retort setting, main and service laying, and repairing meters, and has a general knowledge of fittings. Salary £1 per week; house, coal, and gas free.
Apply to O. DANIEL, Secretary, pro tem.

TO GAS-WORK ERECTERS & FITTERS.

WANTED, Good Workmen in almost every branch of Gas Engineering—Gasholder Makers, Apparatus Fitters, Erectors, Gasfitters, and Dry Meter Makers.
Give references and state wages required to GEORGE BOWER, Engineer and Gas-Work Contractor, St. Neots, HUNTS.

TO GASFITTERS.

WANTED, for Bahia, a Steady, Active YOUNG MAN. Must understand service laying, the fitting up houses, and manufacture of fittings. None need apply who cannot write a good hand, and whose character will not bear the strictest investigation.
Particulars as to salary, &c., can be obtained on application to the SECRETARY of the Bahia Gas Company, Limited, 3, Cloak Lane, CANNON STREET, E.C.

WANTED, by the Chertsey Gas Consumers Company, Limited, a MANAGER. He must understand and be capable of superintending the manufacture and distribution of gas, laying mains, setting of clay and iron retorts, exterior and interior fittings, and repairing of meters.
Applications, stating salary required, with testimonials, to be made by letter, addressed to the SECRETARY, Guildford Street, Chertsey, SURREY, on or before the 30th of July.
July 19, 1866.

WANTED, by the South Shields Gas Company, a thoroughly Steady and Trustworthy Man, as FOREMAN STOKER. He must well understand and have had good experience in the retort-house, engine-room, and governor-house.
Applicants to apply by letter, in their own handwriting, to state age, and give references to present and last places of employment. Wages, 35s. per week.
Address, W. J. WARNER, Engineer.

TO GAS COMPANIES.

WANTED, by the Advertiser, a Situation as SECRETARY and MANAGER of a medium-size Gas-Work. Has had more than five years experience in a Gas-Work, and can furnish satisfactory testimonials.
Address, A. G., care of Mr. THOMAS FISHER, Gas-Works, Taunton, SOMERSET.
July 18, 1866.

TENDER FOR GAS TAR.

THE Slough Gas and Coke Company have for immediate disposal, at their Works, about 20,000 Gallons of GAS TAR.
Tenders are invited.
Address, "SECRETARY," Slough Gas and Coke Company, Slough, BUCKS.

TO PARTIES ABOUT TO ERECT NEW GAS-WORKS, AND OTHERS.

TO BE SOLD, by Private Treaty, the whole of the plant of the Sevenoaks Gas-Works, lately used at Hart's Lands, Sevenoaks, including TWO GASHOLDERS, PURIFIERS, SCRUBBER, and other fittings necessary for the manufacturing of gas.
These are sold owing to the Sevenoaks Gas Company (Limited) having erected much larger works on a new site.
For further particulars apply to Mr. G. How, of Sevenoaks, Secretary to the Sevenoaks Gas Company (Limited).

TO MANURE MANUFACTURERS, DEALERS IN SULPHATE, AND MANUFACTURERS OF OIL OF VITRIOL.

THE Directors of the Crystal Palace District Gas Company are desirous of receiving TENDERS for the SULPHATE OF AMMONIA made at their Works for Twelve months from the 1st of August next, the quantity being about Two tons per week.
Also Tenders for the supply of BROWN OIL OF VITRIOL, of 1.713 specific gravity, manufactured from sulphuric acid, and containing 80 per cent. of acid, to be delivered in carboys at the Company's Works, at the rate of about 30 carboys per week.
Tenders to be addressed to the Chairman of the Company, marked "Tender for Sulphate," &c., and sent to the Offices of the Company, at the Works, Lower Sydenham, S.E., not later than Friday morning, the 27th inst. Samples of the Sulphate can be obtained on application to Mr. E. S. Cathals, the Engineer and Manager.
By order of the Board,
MAGNUS OREEN, Secretary.
July 14, 1866.

1862.

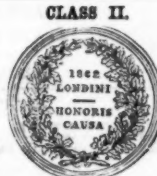


PATENT ANTIMONY PAINT.

MADE ONLY BY

GEORGE HALLETT & CO.,

296, ROTHERHITHE, LONDON, S.E.



This Paint having been in general use over four years (especially in some of the principal Gas-Works), and proved itself the best light-coloured Paint produced for resisting the influence of vitiated atmospheres, it is important that its qualities should be more widely known.
It is not discoloured like white lead in a sulphuretted atmosphere, nor washed off like white zinc; and its light colour reflecting heat, produces much less expansion of gas in holders painted with it than with dark colours, besides rendering them much more sightly. Its specific gravity is so much below white lead that the same weight will cover one-third more surface, while it is equal in body; and its price being about the same (28s. per cwt.), it is actually one-third cheaper. From experience, its manufacture is greatly improved, and it is quite suitable for all purposes in which white lead is employed.
Reference is kindly permitted by the Engineers of the City of London, Commercial, London, and Surrey Consumers Gas Companies, who pronounce it the best Paint known for their purposes.

N.B.—Antimony Paint, COVERING SO MUCH MORE WORK, costs under 20s. per cwt., as compared with White Lead at 28s. per cwt.

LLOYD AND LLOYD,
ALBION TUBE-WORKS, BIRMINGHAM,

MANUFACTURERS OF

WROUGHT-IRON TUBES & FITTINGS,

PLAIN, GALVANIZED, & ENAMELLED, for Gas, Steam, and Water, from 1/2 in. to 6 in. bore.

STOCKS, TAPS, and DIES, GUN METAL GLAND-COCKS, WATER-GAUGES, &c.;
PATENT LAP-WELDED IRON TUBES,

For Locomotive and Marine Boilers, &c.

LONDON WAREHOUSE—Nº 66, QUEEN STREET, E.C.



EDWARD COCKEY & SONS,
IRON-WORKS, FROME SELWOOD,
PATENT GAS-VALVES.
A PRIZE MEDAL



WAS AWARDED TO THE PATENTEES AT THE INTERNATIONAL EXHIBITION OF 1862.

These Valves are formed of two cylinders, working one on the other horizontally, having their faces ground perfectly gas-tight.

They are adapted either as central valves, for two, three, or four purifiers—as bye-passes—or as inlet and outlet-valves for gasholders.

They have been fixed in some of the most important Gas-Works in the Kingdom, for more than eight years. Considerably over two hundred of them are now in use, and the most satisfactory reports of their advantages continue to be received. They are simple in construction, and not liable to get out of repair, and if in course of time the faces should leak, they can be easily re-ground and made as tight as ever, without removal from their positions. Each Valve is fitted with an index, which shows to the person in charge of the Works in what direction the gas is passing.

Frome, January 20, 1866.

TO TAR DISTILLERS, &c.

THE Gas Committee of the Middle-
brough Local Board are prepared to receive
TENDERS for the TAR made on their Works for the
ensuing twelve months.

The tenders to state price per ton, either F. O. B. or
F. O. Rails, in purchaser's casks or tanks at Middle-
brough; and to be delivered to the undersigned not
later than July 31, 1866.

By order of Gas Committee,

JOHN DUNNING, Manager.

FOR SALE, a 6-in. Centre Valve,
complete, nearly new; 2 9-ft. lengths of 12-in.
Hydraulic Main; 12 3-in. H and Dip Pipes; Hydraulic
Valve, with 4-in. connexions, for two purifiers; 4 cast-
iron Columns for 8 ft. deep gasholder. Sold on account
of enlargement of works.

Apply to Mr. J. H. MASON, NEWBURY.

TO GAS COMPANIES AND ENGINEERS.

To be Disposed of, by the Falmouth
Gas, Coal, and Coke Company, Limited, a Cast-
Iron GASOMETER-TANK, 45 ft. diameter by 14 ft.
deep, in excellent condition—estimated weight about
78 tons; together with the bolts and nuts, belt-hoops,
&c., belonging thereto. Now lying at Penryn, very
convenient for shipment or delivery by railway.

Also with the above, or separately, the Framing and
Angle Iron Curbs for a telescope gasholder to suit the
above tank. Also the pulleys, chains, guide-wheels,
bars, &c.

Application to be made to Mr. W. WARM, Secretary
to the Company, Falmouth, Cornwall.
Dated Falmouth, June 23, 1866.

JAMES M'KELVIE,
CANNEL COAL MERCHANT,
HAYMARKET,
EDINBURGH.

Established 1840.

NATURAL

HYDRATED OXIDE of IRON
constantly on Sale. Apply to
MARTYN DENNIS AND CO.,
LIVERPOOL.



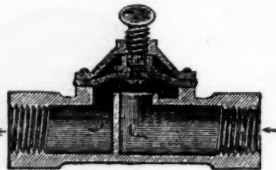
LEONI'S Patent Adamas
GAS-BURNERS are entirely free
from liability to Corrosion, Injury from
Heat, or danger of Fracture, and are un-
alterable in the dimensions of their Aper-
tures. Uniformity in the consumption of
gas is obtained by the process of manufac-
ture, which insures that
the burners shall be pre-
cisely similar in pattern.

Net Cash Price, 8s. per gross.

Patentee and Sole Manufacturer, S. LEONI, 34, St.
Paul Street, New North Road, LONDON, N.

THOMAS LAMBERT & SON,
SHORT STREET, LAMBETH, LONDON.

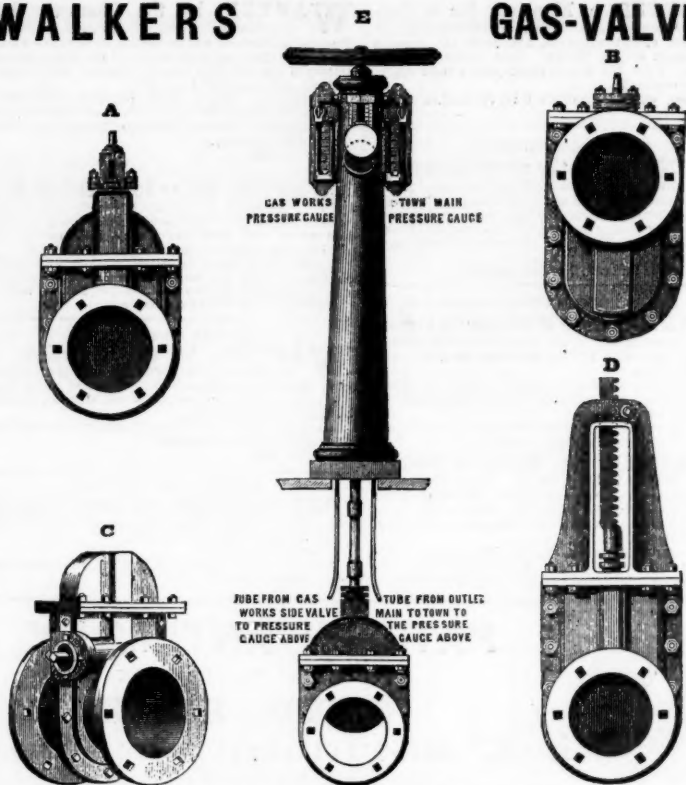
CARTER'S SAFETY GAS-VALVES,
Made to suit every Description of Fittings.
Section of Valve open.



Manufacturers of
WROUGHT-IRON PIPES AND FITTINGS,
SLUICE-VALVES AND STOP-COCKS,
STOCKS, TAPS, & DIES,
CHANDELIERS, PENDANTS, &c.
PATENT MERCURIAL GAS-REGULATORS.

EDMUND SMITH,
GRASBROOK, HAMBURG,
would respectfully call the attention of engineers
and managers of gas-works to his Newly Improved
GAS-METER, patented 1862 in England, and the
principal parts of the Continent.

Price-lists and tenders for gas-meters, experimental
station-meters, experimental holders, governors, puri-
fiers, gasholders, pressure-gauges, gas and water fit-
tings, &c., are forwarded on application.

WALKERS**GAS-VALVES.**

- A**—Aboveground Screw Gas-Valve, with improved Indicator, to show when open and shut.
B—Underground Screw Gas-Valve, for shallow Street-Mains, made with or without an Indicator.
C—Internal Rack-Valve, with wrought-iron Pinions and machine-cut Teeth.
D—Ordinary Rack and Pinion-Valve, with strong, undamageable Racks and Pinions—made as shown,
or boxed up for Street-Mains.
E—Regulating Indicating Column and Valve, for governing the supply of Gas to the Town.

LITTLE SUTTON STREET, LONDON, E.C.

JAMES MILNE & SON,
GAS ENGINEERS,
Gas-Meter, Gas Apparatus, and Gasfittings Manufacturers,
EDINBURGH, AND
2, KING EDWARD STREET,
NEWGATE STREET, LONDON.

Station-Meters, Governors, Consumers Meters, Gas Lustres, Chandeliers, Brackets, &c., and every
description of Gasfittings and Gas Apparatus.

MARTIN'S
LEE MOOR PORCELAIN FIRE-BRICKS,

Containing no Lime, and only 45 of Oxides, resist the strongest heats, and will last for Gas-Works
longer than any others.

Samples and prices sent, and the highest references given, on application to

MARTIN BROTHERS,
ST. AUSTELL, CORNWALL.

WALTER FORD,
159, GRAY'S INN ROAD, LONDON.
MANUFACTURER OF WET AND DRY GAS-METERS, STATION-METERS,
GOVERNORS, &c. &c.

Sole Manufacturer of **PADDON'S PATENT STREET-LAMP REGULATORS**, for insuring
any required consumption. These Regulators are in general and increasing use, and references can be given to
Gas Companies who use them for every Lamp.

WOLVERHAMPTON RETORT WORKS.
ESTABLISHED 1840.

JOHN EUNSON AND SON,
GAS ENGINEERS, AND MANUFACTURERS OF CLAY RETORTS,
AND FIRE GOODS IN GENERAL,
WOLVERHAMPTON.

Retort Mouthpieces, Bolts, Nuts, and every description of Wrought-Iron Work.

GAS & GENERAL ENGINEERING OFFICES,
53 FREDERICK STREET, EDINBURGH.

MR. JOHN ROMANS, Civil and
Practical Engineer, may be consulted at the above address on all matters pertaining to Gas-Works, Water-Works, and other Engineering questions. Plans and Specifications Furnished. Works Erected and Repaired, or taken on Lease for a term of years. Mr. Romans is also agent in Edinburgh for supplying High-Classed Scottish Cannel Coal and Fire-Clay Goods.

FRASER'S PATENT RIBBED CAST-IRON RETORTS are being introduced at the Gas-Works, Derby, Shrewsbury, Portsea, Nottingham, Syston, Whitwick, Barrow-in-Furness, Seaham, Rishborough, Leighton, Loughborough, Corwen, Castle Donnington, Kegworth, Royston, Woking, Swadlincote, Rugby, Carlou in Ireland, Stornoway, N.B.; also at Gibraltar and Montreal, &c.
Apply to **MR. A. C. FRASER, Gas-Works, COLCHESTER.**

O X I D E O F I R O N,
We are prepared to supply, on moderate terms, **HYDRATED PEROXIDE OF IRON (BOG OCHRE),** Same quality as supplied by us to several of the most extensive Gas Companies, and which has given entire satisfaction.

FRANCIS RITCHIE & SONS,
BELFAST.

INTERNATIONAL EXHIBITION,
1862. CLASS X.

PRIZE MEDAL

For excellence of Fire-Clay Gas Retorts, and "HONOURABLE MENTION" for good quality of Fire-Bricks.

WILLIAM STEPHENSON & SONS,
THROCKLEY,
NEWCASTLE-ON-TYNE,

STOURBRIDGE FIRE-CLAY WORKS.

E. BAKER & CO.,

24 WHARF, HARROW ROAD, PADDINGTON, W.

FIRE-BRICKS, LUMPS, SQUARES, and TILES of all dimensions.

GAS-RETORTS always in stock. GARDEN EDGINGS of various patterns. ORNAMENTAL BUILDING BRICKS. GRATE BACKS in various designs. Contracts entered into to set Retorts, erect Furnaces, &c.

Shipments on the shortest notice.

THOMAS CARR & SON,

MANUFACTURERS OF

FIRE-BRICKS, LUMPS, TILES, RETORTS,
&c. &c.

SCOTSWOOD FIRE-BRICK WORKS,
NEAR
BLAYDON-ON-TYNE.

A D D I S O N P O T T E R,

WILLINGTON QUAY,

NEAR NEWCASTLE-UPON-TYNE,
Manufacturer of Clay Retorts, Fire-Bricks, and every description of Fire-Clay Goods.

HARRIS and PEARSON,

PROPRIETORS OF

BEST CLASS-HOUSE POT and CRUCIBLE CLAY

MANUFACTURERS OF

FIRE BRICKS, GAS RETORTS, & C.
AMBLECOTE FIRE CLAY and BRICK WORKS,
STOURBRIDGE.

Late in the occupation of I. and W. King.
Originally J. Pidcock, Esq.

NB A quantity of best Clay Retorts in stock, viz.—Circulars, 14 inches, 15 inches, 16 inches. D's, 16x12, 15x14, 20x16, 16x18.

HANCOCK'S INDIA-RUBBER
GAS-TUBING.

All sizes, from 1/2 in. to 4 in. diameter and upwards.

Also,

INDIA-RUBBER BAGS for GAS-MAINS.
WASHERS for GAS and STREAM JOINTS.
VALVES (pure solid Rubber) for STREAM-ENGINES.
PACKING (Roll or Sheet) for STREAM-ENGINES.
STRAPS (Rubber and Canvas) for DRIVING MACHINERY.
ROSE-PIPES to convey HOT or COLD WATER.
GOKE-HOSE, made specially for rough usage.
GAUGE GLASS RINGS and WASHERS.
SUCTION and DELIVERY HOSE-PIPES for PUMPS, FIRE-ENGINES, BREWERIES, and FACTORY purposes.
BRASS JETS, STOP-COCKS, SPREADERS, and UNION CONNECTING-JOINTS fitted to ditto.
Illustrated Price-Lists on application.

JAMES LYNE HANCOCK,

Vulcanized India-Rubber Works,
GOSWELL MEWS, AND 266, GOSWELL ROAD,
LONDON, E.C.

Trade Mark. THE MEDAL FOR 1862.



THE ONLY PRIZE MEDAL AWARDED FOR TUBES AND FITTINGS.

CROWN TUBE-WORKS,
WEDNESBURY, STAFFORDSHIRE.

WAREHOUSE—81, UPPER GROUND ST., LONDON.

JAMES RUSSELL & SONS,

Patentees and First Makers of Wrought-Iron Tubes.

W. J. HOLLANDS,

IRON MERCHANT,

31, BANKSIDE, LONDON, S.E.

SOCKET, FLANGE, HOT-WATER PIPES, AND ALL CONNECTIONS; RETORTS, HYDRAULIC MAIN, LAMP-COLUMNS, &c.; AND EVERY DESCRIPTION OF CASTINGS AND WROUGHT-IRON-WORK FOR GAS AND WATER-WORKS, STEAM, AND GENERAL PURPOSES.

N.B.—All goods kept in stock, and supplied at wholesale prices. Estimates given, and orders by post punctually attended to the same day.

BIRTLEY IRON WORKS,

CHESTER-LE-STREET,

DUBHAM.

Manufactory for every description of Casting and Machinery for Gas-Works and Water-Works.

Warehouse in London for Cast-Iron Pipes and Connections of all sizes and in any quantity, Scott's Wharf, Bankside, Southwark.

Office in London, Mr. E. M. PERKINS, 78, Lombard Street.

BELGIAN CLAY RETORTS.

J. SUGG and CO., late ALBERT
J. KELLER, Ghent.—The removal of the import duties on Earthenware permitting the entry of Clay Retorts into England, Messrs. Sugg, of Ghent, beg to draw the attention of the Gas Companies of London, and other Cities, to the very superior quality of the RETORTS manufactured by them. They can be made of any size, in one piece, and of any form. The price will be in proportion to the weight, and very moderate in comparison to their value.
Communications, addressed to J. Sugg and Co., GHENT, will receive immediate attention.

ESTABLISHED 1827.

JOHN BEVERLEY and SON,

MARK LANE, LEEDS.

Manufacturers of Patent Metallic Wet Gas-Meters, Station-Meters, Experiment-Meters, Governors, Pressure-Gauges, Syphon-Pumps, &c.

Inventors and sole manufacturers of Beverley's double-cased Gas Cooking Apparatus, unequalled in economy, comfort, and cleanliness.

Meters of any make altered and put into complete repair, to meet the requirements of the Sale of Gas Act.

ROBERT MACLAREN and CO.,

EGGLINTON FOUNDRY, GLASGOW,
Manufacturers of all sizes of Cast-Iron Main Pipes, by an improved Patent. General Ironfounders, Gas Engineers, and Wrought-Iron Tube Makers.

D. BRUCE PEEBLES,

Gas-Meter Manufacturer,

FOUNTAINBRIDGE,

EDINBURGH.

BEST AND HOBSON,

LATE

ROBERT BEST,

100, CHARLOTTE STREET, BIRMINGHAM,
Manufacturers of

CHANDELIERS, PENDANTS, BRACKETS,
Brass and Iron Gas-Fittings, Steam and Water-Cock &c., &c.

Also,

PATENT WELDED IRON TUBES,

For Gas, Steam, Water, and other purposes.
GAS APPARATUS OF EVERY DESCRIPTION.
High-pressure Water-Valves and Cocks, &c., &c.

Plumbers Brassfoundry,

BRASS, COPPER, COMPOSITION, and LEAD TUBES,
Works: Birmingham, and Great Bridge, Staffordshire.

ALFRED PENNY, Gas and

CONSULTING ENGINEER,

WENLOCK IRON WORKS,

21 & 22, WHARF ROAD, CITY ROAD, LONDON.

Mr. PENNY having had a large experience in the construction, alteration, and management of Gas-Works, begs to inform the Directors of Gas Companies that he may be consulted on all matters appertaining thereto. He also manufactures Gas-holders, Purifiers, and all the various apparatus used in Gas-Works, and keeps in stock Retorts and Mouthpieces, Socket-Pipes, Bends, Branches, T-pieces, &c. &c.

Plans, Specifications, and Estimates prepared.

FREDERICK RICHARDS,
CONSULTING AND GENERAL ENGINEER.

WILMSLOW, CHESHIRE.

Plans, Specifications, and Estimates made for New or the Alteration of existing Gas-Works.
Gas-Works leased, or Estimates given for the Manufacture of Gas per Contract for a term of years.
Manchester Office: 8, Cateaton Street.

GAS COAL.

MESSRS. RICHARD EVANS & CO.,
Haydock Collieries, near St. Helen's, are prepared to SUPPLY their best GAS COAL to Gas Companies on favourable terms.

This Coal is extensively used by some of the largest Gas Companies in the Kingdom.
It produces 2,400 cubic feet of 17-candle power, and yields 13 cwt. of coke per ton.

JAMES NEWTON & SONS,

(Established 1820.)

FIRE-BRICK AND TILE MERCHANTS,

Wholesale and for Exportation,

FALCON DOCK, 78 AND 79, BANKSIDE,

SOUTHWARK, LONDON, S.E.,

DEPOT for STOURBRIDGE AND NEWCASTLE FIRE-BRICKS, LUMPS, TILES, and FIRE-CLAY,

and every Article suitable for

GAS AND WATER WORKS.

B. CARPENTER'S Improved Wood

SIEVES for Gas-Purifiers.

Works: 14, John Street, Pentonville Road, LONDON, N.

The above sieves are used by the principal gas companies in London and the country. Their utility, durability, and cheapness combined, render them superior to all others.
Testimonials from gas engineers who have tested their qualities forwarded on application.
All orders punctually attended to, and estimates given if required.

MR. G. W. STEVENSON, C.E., F.G.S.,

(for the last 10 years Engineer to the Corporation of Halifax), may be consulted upon all matters connected with the construction of gas-works, and the manufacture and supply of gas; also upon the construction of water-works and the supply of water to towns; and also in respect to the sewerage of towns, and sanitary works generally.
Offices, Waterhouse Street, HALIFAX, and 14, Park Street, WESTMINSTER.

CATHELS'S Patent Four-Way Disc

GAS-VALVES, applied to Purifiers, Gas-holders, or other apparatus, save from ONE-HALF to TWO-THIRDS the number of ordinary Valves and Connections. They are simple, strong, and durable; and having no ground faces or rubbing surfaces, cannot get set fast however long they may remain unworked. The direction in which the Gas is passing can also be seen at a glance.
Descriptive Circular, Prices, &c., furnished on application to the Manufacturers, Messrs. GUEST and CHIMES, BOTHERHAM.

J. T. B. PORTER & CO.,

GAS ENGINEERS,

MANUFACTURERS AND CONTRACTORS FOR GAS-WORKS

Of any extent at Home and Abroad,

GOWTS BRIDGE WORKS, LINCOLN,

AND

JOHN STREET, ADELPHI, LONDON, W.C.

SAMUEL CUTLER, Gasholder

MAKER and CONTRACTOR

For Tanks, Roofs, Purifiers, Condensers, Erection and Alteration of Works and every description of GAS APPARATUS.

PROVIDENCE IRON WORKS,

MILL WALL, POPLAR, LONDON, E.

Main Laying and Gas-Works erected complete.

WALTER MABON & CO.,

Engineers,

ARDWICK IRON-WORKS,

FAIRFIELD STREET, MANCHESTER,

MANUFACTURERS OF

IRON TANKS, GASHOLDERS,

GAS APPARATUS,

PIPES, VALVES, IRON ROOFS,

WROUGHT AND CAST-IRON GIRDERS.

DESIGNS, SPECIFICATIONS, & ESTIMATES

FURNISHED.

J. STRACHAN,

CONSULTING GAS ENGINEER,

68, KING'S ROAD, READING,

Having had many years experience in the adjustment and regulation of the supply of gas to public lamps, begs to offer his services to Gas Companies, Corporations, or Boards of Health, on reasonable terms.
Contracts taken for laying mains, general repairs, and extension of gas-works.

NOTICE OF REMOVAL.

THE BUSINESS OF

WILLIAM SUGG,

GAS ENGINEER,

is removed to his New Factory,

**VINCENT WORKS, VINCENT STREET,
REGENT STREET, WESTMINSTER.**

WATER AND GAS PIPES,

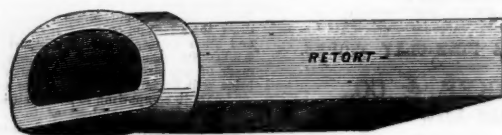
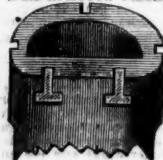
AND EVERY DESCRIPTION OF CASTINGS.

**CLARIDGE, NORTH, AND COMPANY,
PHENIX FOUNDRY, BILSTON.**

KING BROTHERS,

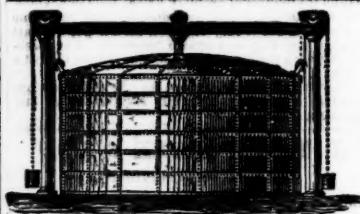
STOURBRIDGE FIRE-BRICK AND RETORT WORKS.

HEAD or MOUTH PIECE



KING BROTHERS beg especially to call the attention of Gas Companies to the superiority of their Retorts, which are made from the celebrated STOURBRIDGE FIRE-CLAY. Mr. King has patented a Kiln for burning Retorts, by which Patent all Cold Air is excluded from the Kiln while burning, thus rendering them FREE FROM CRACKS AND CORRECT IN FORM. By great care in Manufacturing, combined with the advantages in burning, a VERY SMOOTH SURFACE is obtained, rendering them less liable to carbonize.

Retort Ovens, Fire-Bricks, Guards, Saddles, Rabbitted Burs, Flues, and Quarries, are all Manufactured of the same quality of Clay. Every Retort and Brick is branded "King Brothers, Stourbridge."



IMPROVED GAS APPARATUS, FOR TOWNS, VILLAGES, &c.

INVENTED AND MANUFACTURED BY

W. C. HOLMES & CO.,

WHITESTONE IRON-WORKS, HUDDERSFIELD.

WILL BE SENT ON APPLICATION:-

- PLANS, SPECIFICATIONS, and PRICES of GAS APPARATUS;
- PLANS, SPECIFICATIONS, and ESTIMATES of the requisite BUILDINGS for each size of Apparatus;
- PLANS of the IMPROVED ANNULAR CONDENSERS;
- PLANS of the COMBINED PURIFYING APPARATUS, so eminently adapted for Exportation.

LONDON OFFICES—56, GRACECHURCH STREET, CITY.

** Please address letters to the Works at Huddersfield.

WILLIAM INGHAM AND SONS, WORTLEY FIRE-BRICK AND RETORT WORKS,

Near



Leeds.

W. INGHAM and SONS, having for many years been extensively engaged in the Manufacture of

RETORTS AND FIRE-BRICKS FROM THE CELEBRATED WORTLEY FIRE-CLAY beg to call especial attention to their RETORTS, which have for many seasons proved to be unsurpassed in quality by any in the Kingdom, their FREEDOM FROM CRACKS and the ADHESION OF CARBON rendering them worthy the attention of all parties interested in the making of Gas. The Works are of such magnitude as to ensure the prompt execution of orders to any extent.

Estimates for Setting, or Bricklayers sent when required.

GAS OVENS IN SEGMENTS OF EQUAL QUALITY.

A large stock of Fire-Bricks, Fire-Clay, Terra Cotta, and Drain-Pipes of all sizes kept in London at CHRISTIE & CO.—Wharf, 64, Bankside, Southwark, where all particulars of Prices, &c., may be obtained.

N.B.—Export orders continue to have prompt attention.

Registered Crystal Chandelier.



TO GAS COMPANIES AND THE TRADE.
 NOTICE OF REMOVAL IN CONSEQUENCE OF THE LATE FIRE.
J. DEFRIES AND SONS,
 Gas Engineers, and Manufacturers of
CRYSTAL, BRONZED, & ORMOLU Chandeliers;
IMPROVED CRYSTAL STAR & SUN LIGHTS;
VESTIBULES, and every description of Gas-Fittings.
 Temporary Show-Rooms:—16 & 17, COMMERCIAL STREET, WHITECHAPEL,
 Five Minutes Walk from their late Establishment, 147, HOUNSDITCH.

J. D. & SONS beg most respectfully to inform Gas Companies and the Trade that their CITY SHOW-ROOMS are now complete with every description of Lighting Mediums, including Registered Designs of Medieval Gas-Fittings, Crystal, Bronzed, Ormolu, and Electro-Plated Chandeliers, Brackets, Vestibule-Lights, Bronzed and Gilt Statuettes.

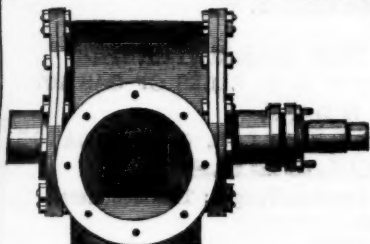
Special Designs prepared in perfect accordance with architectural arrangements. Estimates furnished for the Lighting and Fitting up of Theatres, Music-Halls, and Public or Private Buildings with Gas.

GAS-MOONS of the Newest Designs.

The PATENT GAS-REGULATOR and PURIFIER reduced to 6s. 6d. per dozen. Patterns-Books of Gas-Fittings, Crystal and Ormolu Chandeliers for 1865-66 are now complete.

Works: LONDON and BIRMINGHAM.

The CRYSTAL CEILING, with Ventilating Apparatus, manufactured by J. Defries and Sons for the Strand Music-Hall.



ROTATORY AND DOUBLE-ACTING GAS-EXHAUSTERS,

with many recent improvements, from 1500 to 150,000 cubic feet per Hour.

JAMES BURTON, SONS, & WALLER,

MAKERS OF ENGINES, MACHINERY, and IRONWORK for GAS-WORKS,

efficient and durable TAR, LIQUOR, and SYPHON PUMPS,

GAS-VALVES, with or without Wedges, worked with powerful Worm and Rack,

SELF-ACTING BY-PASS VALVES, with Lid and Believing Lever,

ROTATORY, TUMBLER, and CAPILLARY WATER DISTRIBUTORS for SCRUBBERS.

SMALL-SIZE EXHAUSTERS KEPT IN STOCK.

JOHN'S PLACE, HOLLAND STREET, SOUTHWARK, LONDON, S. E.

GEORGE ANDERSON,

GAS AND CONSULTING ENGINEER.

OFFICES REMOVED TO

19, NORTHUMBERLAND STREET, CHARING CROSS.

Mr. ANDERSON advises Companies on all matters connected with the manufacture of Gas and the construction of Works.

PATENTEE & MANUFACTURER of the following Inventions:—

RETORT SETTINGS, heated by tar without the production of smoke.

STEAM-ENGINES and EXHAUSTERS, separately or combined.

FOUR-WAY VALVES, one of which is equal to three ordinary Valves.

STATION GOVERNORS in which the Gasholder cannot tilt and cause accidents.

A Pamphlet containing Eighteen Illustrations of the foregoing, with letter-press on the construction of Works, post free, 2s. 6d.

"The Author is well qualified to speak authoritatively upon the important subjects to which his pamphlet refers."—ARTIZAN.



Established



1795.

JOSEPH CLIFF & SON,

THE ORIGINAL

WORTLEY FIRE-BRICK WORKS,

NEAR LEEDS,

MANUFACTURERS OF ALL DESCRIPTIONS OF

FIRE GOODS, and SALT-GLAZED DRAIN-PIPES.

LONDON AGENT:

MARCUS BOURNE NEWTON,

Wharf No. 4, inside Great Northern Goods Station, King's Cross

Where is always kept a Stock of Retorts, Fire-Bricks, Terra Cotta Ware, and Drain-Pipes.

THE
GAS-METER COMPANY, LIMITED,

A. ANGUS CROLL, C.E., Chairman.
GEORGE RAIT, MANAGING DIRECTOR. T. G. BARLOW, C.E., CONSULTING ENGINEER.

CROLL'S DRY GAS-METER,

(Invented and Patented in 1844, since which time 200,000 of these Meters have been manufactured by Mr. CROLL.)

Obtained **PRIZE MEDALS** at the EXHIBITIONS of London, 1851, of New York, 1853, and Paris, 1855.

IMPROVED in 1858,

And was awarded at the INTERNATIONAL EXHIBITION of 1862, the PRIZE MEDAL for

"GOOD CONSTRUCTION and SOUND WORKMANSHIP."

Now manufactured by the GAS-METER COMPANY, LIMITED, KINGSLAND ROAD, LONDON; and, for the purpose of obtaining greater accuracy in all its parts, the most perfect machinery has been adopted, "By which the construction of the Meter is much simplified, while its liability to get out of order is diminished." (See report of T. G. BARLOW, Esq., C.E.)

ALEXANDER WRIGHT,

55 and 55A, MILLBANK STREET, WESTMINSTER, S. W.,

MANUFACTURER OF

COMPENSATING & OTHER WET & IMPROVED DRY GAS-METERS,

Of the best material and workmanship, carefully adjusted to meet the requirements of the SALES OF GAS ACT.

STATION-METERS & GOVERNORS,

WRIGHT'S REGISTERING PRESSURE-GAUGE, EXHAUSTER REGISTER, & REGULATOR;

STANDARD TEST GASHOLDERS;

Consumers' Governors; Inspectors' Pocket, King's, and all other kinds of Pressure-Gauges; Thermometers for Condensers, Pressure Registers, &c., &c.

EXPERIMENTAL TESTING APPARATUS,

Employed by the best experimenters in this country and on the continent, and by the Gas Testers in the London districts.

PHOTOMETERS, SPECIFIC GRAVITY APPARATUS, BI-SULPHURET OF CARBON TEST, THOMPSON'S BROMINE AND HEATING POWER OF FUEL TESTS, IMPROVED ALKALIMETER, EXPERIMENTAL METERS

AND GOVERNORS, MINUTE CLOCKS, &c., &c.

"ANALYSIS OF GAS FOR PRACTICAL MEN,"

New and Enlarged Edition, with "Gas-Meter Testing under Sales of Gas Act," p.p. 25 Stamps.

R. LAIDLAW & SON,

GAS ENGINEERS, IRON & BRASS FOUNDERS

Alliance Foundry, 147, East Milton Street, and Barrowfield Iron-Works,

GLASGOW;

AND AT SIMON SQUARE, EDINBURGH;

MANUFACTURERS OF

STATION & CONSUMERS METERS, ALL SIZES;

WROUGHT-IRON TUBES, FOR GAS, WATER, & STEAM; CAST-IRON RETORTS & PIPES,

HYDRAULIC MAINS, CONDENSERS, WASHERS, SCRUBBERS, PURIFIERS, & TANKS.

GASHOLDERS;

GOVERNORS, SLIDE-VALVES, &c.;

WROUGHT & CAST IRON ROOFS & HOUSES.

Contractors for Gas-Works of any Magnitude.

Plans, Specifications, and Estimates furnished.

LONDON ESTABLISHMENT—190, STRAND.

D. HULETT and CO., 55 and 56, HIGH HOLBORN, LONDON,

PATENTEES and MANUFACTURERS of the ONLY GOOD MERCURIAL GAS REGULATOR,

invite the attention of Gas Companies and the Trade generally to their Improved GAS-METERS, which they warrant equal to any in Quality, Workmanship, and Simplicity of Construction, and the only Meters from which Gas cannot be obtained without being duly registered.

MANUFACTURERS OF

GAS CHANDELIERS, GLASS LUSTRES, HALL LANTERNS, VESTIBULES, BRACKETS, PENDANTS;

DOUBLE CONE, ALBERT, SHADOWLESS, & EVERY DESCRIPTION OF BURNER, UNION JETS, BATSWINGS, ETC.;

IMPROVED FULL-WAY CARTER'S VALVES (much approved of);

GAS-STOVES, and every article connected with Gas Apparatus.

CAST & WROUGHT-IRON PIPE BLACK & GALVANIZED. COPPER, TIN, BRASS, & COMPOSITION TUBING.

D. HULETT'S IMPROVED SERVICE CLEANSER

for clearing out Mains, Services, and Interior Fittings—65s. net.

Boyle's Patent Silvered Glass Combination Reflectors and Outside Lanterns.

Sole Manufacturers of Church and Mann's Photométers.

Large Pattern Books with every description of Gas-Fittings, Chandeliers, &c., with complete Book of Prices, 12s.